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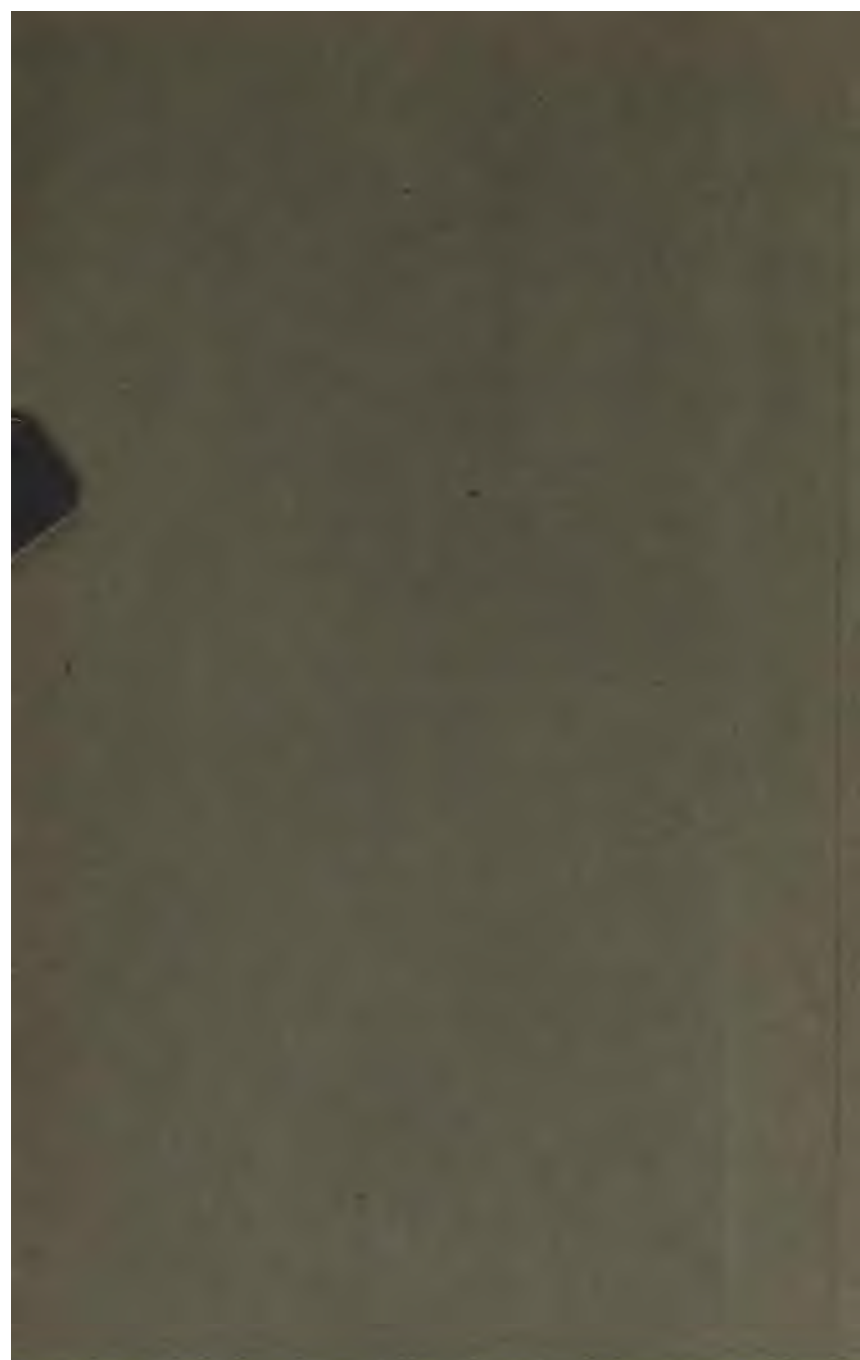
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THE *JS*
NAUTICAL ALMANAC

AND
ASTRONOMICAL EPHEMERIS

FOR THE YEAR

1831.

PUBLISHED BY ORDER OF THE
COMMISSIONERS OF LONGITUDE.

London:

PRINTED BY T. BENSLEY, CRANE COURT, FLEET STREET,
PRINT~~ER~~,

AND SOLD BY JOHN MURRAY, ALBEMARLE STREET,
BOOKSELLER,

TO THE COMMISSIONERS.

1828.

[Price Five Shillings.]

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ADVERTISEMENT.

IN continuing the annual publication of the Nautical Almanac, the BOARD of LONGITUDE has been more anxious to attain the highest possible degree of accuracy in the execution of those computations, which have hitherto been considered as requisite for the purposes of navigation, than to add very materially to their number or extent. It has, however, been thought proper to annex to the Almanac a correct Table of Refractions, a Table of Second Differences, and the true or apparent Places of Sixty Principal Fixed Stars, for every ten days of the year, corrected for precession, aberration, and nutation.

The Table of Refractions is computed by a very simple formula, derived originally from theory, and adapted to the results of the most accurate observations, which have been found to justify the slight deviation from the French Tables, that it exhibits in the mean value of the refraction. The barometrical and thermometrical corrections are a little more at variance with the common mode of computation, and they approach in some degree, for the lower altitudes, to the rules which BRADLEY had inferred from observation alone. The places of the Stars have been principally calculated from the Tables of Dr. MASKELYNE, Dr. PEARSON, Mr. GROOMBRIDGE, and Mr. BAILY.

The Tables of the Planetary Motions, which have been employed, are chiefly those which are printed in the third volume of Professor VINCE's Astronomy, with the omission only of some equations which do not materially affect the results: the place of the Moon has been calculated, since the beginning of 1821, from BURCKHARDT's Tables, which are of a later date; and

the Eclipses of Jupiter's Satellites, for 1824 and the following Years, from DELAMBRE's new Tables. For the Configurations, HALLEY's Tables have been hitherto employed; and they appear, with proper corrections of the epochs, to be sufficiently accurate for the purpose. The obliquity of the Ecliptic has been corrected, from the Observations of the Astronomer Royal, since the beginning of 1822.

The Moon's Right Ascension and Declination are computed to seconds, for the more convenient observation of the Moon's place on shore, and for the calculation of occultations and many other purposes. At the suggestion of a very distinguished practical navigator, the differences of the Sun's Declination from day to day have been added, for the convenience of seamen.

The attention of the BOARD has been particularly directed to the determination of the conditions, under which rewards are to be proposed for the improvement of Astronomical Tables and of Timekeepers; but all who are acquainted with the present state of this department of science must be aware, that a considerable time will be required, before it will be practicable to ascertain, with sufficient precision, how much has actually been effected, and how much is still required, with respect to both these objects. In the mean time it must be remembered, that the BOARD possesses ample powers to reward any improvement, which they may judge sufficiently important, either in the theory or in the practice of any part of Navigation or Nautical Astronomy. As far, however, as the existing Tables of the Sun and Moon have been examined, they appear to be already sufficiently accurate for every purpose of practical Astronomy; although some of the Members of the Board are at present employed in correcting the Tables of the Sun.

EXTRACT FROM

DR. MASKELYNE'S PREFACE.

"MAYER's last Manuscript Tables of the Sun and Moon, and his curious and elaborate Theory of the Moon, were received by the Board of Longitude, after his decease, for which his Widow received a Reward of Three Thousand Pounds, by Act of Parliament; and the celebrated Mr. LEONARD EULER the Sum of Three Hundred Pounds, for having furnished the Theorems made use of by Mr. MAYER in his Theory. Both the Tables and Theory were printed under my inspection, and published in 1770.

"MAYER's Tables of the Sun were used in the Computations of the NAUTICAL ALMANAC, from its first beginning in 1767 to that of 1804, inclusive. From the NAUTICAL ALMANAC of 1767 to that of 1776, both inclusive, or the first ten years, MAYER's Lunar Tables were made use of. But from the NAUTICAL ALMANAC of 1777 to that of 1788, both inclusive, or the next twelve years, the Moon's Place was inserted as calculated from new Tables, improved from MAYER's Tables, composed by the late Mr. CHARLES MASON, under my direction, from calculations made by Order of the Board of Longitude upon the Series of Lunar Observations made by the late Mr. BRADLEY, and published in the NAUTICAL ALMANAC of 1774; in which new Tables the Epoch of the Moon's mean Longitude is 1" less, that of the Apogee is 56" less, and that of the ascending Node 45" more than in MAYER's printed Tables, and the Equations are calculated to tenths of a second; and moreover, one new Equation is introduced, whose argument is the mean Distance of the Moon from the Sun's Apogee, and maximum is 16", 4. But from the NAUTICAL ALMANAC of 1789 to that of 1804, both inclusive, the Moon's Place was inserted as calculated from new Tables still further corrected by Mr. MASON, entitled by him, TABLES of 1780, as having been completed about that time, being rendered more exact than the former by the addition of eight Equations to the Number in MAYER's Table, taken from MAYER's Theory as to the Arguments, but settled as to the *Maxima*, from the said Observations, and the whole being calculated to Tenths of a Second. However the 18th Equation of these Tables was not used, as it was doubtful whether such an Equation should arise from the Theory of Gravity. Moreover, the Epochs of the Sun's Longitude in MAYER's Tables, and of the Moon's Longitude and mean

anomaly contained in MASON's Tables of 1780, were diminished at the rate of $10''$ in a hundred years, reckoned from the year 1756, in the Calculations of the NAUTICAL ALMANACS from 1797 to 1804, both inclusive. Also the Longitudes of the Stars, used in computing their distances from the Moon, were carried on from Dr. BRADLEY's Catalogue of the year 1760, by subtracting $50'',35$ from it, for each year between 1756 and 1760; to reduce that Catalogue back to the beginning of 1756, and then adding at the rate of $50'',20$ for the Precession of the Equinoxes, for each year elapsed after 1756, and applying the Correction of Secular Motion derived from the 44th of the folio Tables annexed to the First Volume of my Astronomical Observations.

"The Distances of the Stars from the Moon had been computed, till the end of the EPHEMERIS of 1802, from a set of folio Tables, constructed for each Star, according to its respective Latitude in 1780; but the Distances in the EPHEMERIS from 1803 to 1808 were computed from the Latitudes corrected by my 45th Table, by making use of TAYLOR's Tables of Logarithmic Sines and Tangents to every Second of the Quadrant.

"The Distances of the Moon from the nine principal fixed Stars are, in this Ephemeris, as they were from that of 1809, computed from their Longitudes and Latitudes, which I have settled from late Observations, and their annual variations, including their proper motions, by comparing them with Dr. BRADLEY's places of them, settled about the year 1756. The Catalogue is inserted at the end of the Explanation of the Ephemeris, p. 162.

"The Calculations of the Planets' Places were made for the EPHEMERIS from 1780 to 1804, by the Tables contained in the Second Edition of M. DE LA LANDE's Astronomy; and those of the Eclipses of Jupiter's Satellites were made from Mr. WARGENTIN's Tables, which make a part of those Tables: excepting the Eclipses of Jupiter's Second Satellite, which were computed, from the EPHEMERIS of 1781 to that of 1804, from new Tables of Mr. WARGENTIN, published at the end of the Nautical Almanac of 1779.

"In the year 1792, came out the Third Edition of M. DE LA LANDE's Astronomy, which he was pleased to make me a present of, containing new Tables of the Sun, Moon, and Planets, and of the Eclipses of Jupiter's Satellites. These Tables are constructed upon the best Observations, and upon the Physical Theories of M. LA GRANGE and M. DE LA PLACE, founded upon Sir ISAAC NEWTON's Principles of Gravity. The Tables of the Sun were constructed by M. DE LAMBRE, entirely from my Observations: the Tables of the Moon are the same with Mr. CHARLES MASON's Tables of 1780, only substituting M. DE LA PLACE's Acceleration instead of MAYER's, and diminishing the mean Secular Motion by $23''$. The Tables of Mercury, Venus, and Mars, were constructed by M. LA LANDE. The Tables of Jupiter and Saturn were constructed by M. DE LAMBRE from the Theory of M. DE LA PLACE, who has accounted for the great Inequalities of their Motion

to great exactness. The Tables of the Planet Herschel, called the Georgian Planet by us, were also calculated by M. DE LAMBRE, according to the Method of M. DE LA PLACE's Theory of Jupiter and Saturn. The Tables for calculating the Eclipses of Jupiter's Satellites were constructed by M. DE LAMBRE upon M. DE LA PLACE's elaborate Theory, and agree with Observation to surprising exactness. The learned world are much indebted to Mr. CHARLES MASON, M. LA GRANGE, M. DE LA PLACE, M. LA LANDE, and M. DE LAMBRE, for these valuable improvements in the Astronomical Tables. May I flatter myself, that I also have contributed my share to this great Work, by directing Mr. MASON in the improvement of the Lunar Tables by precise Rules, and pointing out to him the Equations contained in MAYER's Theory, though omitted in his Tables, to be ascertained by BRADLEY's Observations, and by supplying a variety of Observations, from which, in conjunction with others, this great Work has been completed.

"In the year 1806, the French Board of Longitude published further improved Tables of the Sun by M. DE LAMBRE; and improved Tables of the Moon by M. BURG, founded on M. DE LA PLACE's Theory, with the maxima of the equations stated according to my observations, and the epochs principally from my observations and Dr. BRADLEY's. In these, besides M. DE LA PLACE's other improvements, is introduced a new equation of the Moon's longitude, of the long period of 180 years, depending at once on the Moon's Apogee and Node and on the Sun's Apogee, whose maximum he states at $14''$, but of great consequence in settling the mean motions of the Moon. Mr. BURG has introduced six new Equations, in addition to eight Equations pointed out by MAYER's Theory, but whose maxima had been settled by Mr. MASON, from Dr. BRADLEY's Observations. These Tables had been long expected, and our Board of Longitude had anticipated the important use which they should be applied to in the calculations of the Nautical Almanac.

"I was moreover furnished with several copies of the same, by the favour of the French Board of Longitude. These I immediately put into the hands of our computers; and the publication of the Nautical and Astronomical Almanac for 1813 came out, for the first time, distinguished with this considerable improvement.

"The epochs of these Tables having been adapted to the civil reckoning of time, and to the Midnight with which the last day of the former year ends, and the new one begins, instead of the noon of the last day of the former year, as generally used in Astronomical Tables, I tried to adopt this method for the Nautical Almanac, but afterwards thought it best to relinquish it, and to retain the astronomical time, fearing it would be attended with inconvenience, both in keeping the Register of the Greenwich Observations, and in puzzling the sailors by changing the method of using the Nautical Almanac.

"The Places of the Planets, and the Times of the Eclipses of Jupiter's Satellites, beginning in the year 1805, have been calculated from the Tables annexed to the third edition of M. LA LANDE's

Astronomy, and the Eclipses of the Satellites set down to mean time, instead of apparent time, as formerly.

"The Rev. SAMUEL VINCE, Plumian Professor of Astronomy at Cambridge, having had an early communication of the new French Tables, and of the errata discovered in them by the comparer of the Nautical Almanac and myself, and having also noted several errata himself, has lately re-published them in a neat, elegant, and accurate manner, according to astronomical time, together with the Tables of the Planets (taking those of Mars from M. LE FRANCAIS LA LANDE's Tables in the *Connaissance des Temps* of the 12th year) and the Eclipses of Jupiter's Satellites from the third edition of M. LA LANDE's *Astronomy*. These will be used for the calculations of the Nautical Almanac for succeeding years.

"All the Articles of the *EPHEMERIS* were computed by two separate Persons, and examined by a third, except the Moon's Longitude, Latitude, Right Ascension, Declination, Semidiameter, and Parallax, with its proportional Logarithm, which for Noon, were computed by one Person, and for Midnight by another, and the Truth of these Calculations ascertained by Means of Differences, which, for the Moon's Longitude, were carried as far as the Fourth Order.

"NEVIL MASKELYNE,

"ASTRONOMER ROYAL."

"GREENWICH,
September 25, 1810."

Anno 58^{vo} Georgii III. Regis, Cap. XX.

AN ACT for more effectually discovering the Longitude at Sea, and encouraging Attempts to find a *Northern* Passage between the *Atlantic* and *Pacific* Oceans, and to approach the *Northern* Pole.

[8 May, 1818.]

WHEREAS by an Act passed in the Twelfth Year of her late Majesty Queen *Ann*, intituled, "An Act for providing a public Reward for such Person or Persons as shall discover the Longitude at Sea;" it was enacted, that Persons holding certain Public Offices therein stated, for the time being, and certain other Persons therein mentioned by Name, should be Commissioners for the Discovery of the Longitude at Sea, and for examining, trying, and judging of all Proposals, Experiments, and Improvements relating to the same: And whereas another Act was passed in the Twenty-sixth Year of the Reign of His late Majesty King *George* the Second, for rendering more effectual the last recited Act: And whereas by another Act passed in the Thirtieth Year of the Reign of His present Majesty, intituled, "An Act for continuing the Encouragement and Reward of Persons making certain Discoveries for finding the Longitude at Sea, or making other useful Discoveries and Improvements in Navigation, and for making Experiments relating thereto, and for adding a Commissioner to execute the several Acts for the Discovery of the Longitude at Sea," Persons holding certain other Offices, therein enumerated, for the time being, were added to and joined with the Commissioners appointed by the said first-mentioned Act: And whereas all the Persons mentioned by Name in the said first recited Act are long since deceased: And whereas by reason of the Residence at the Universities of certain Professors who are constituted Members of the Board of Commissioners aforesaid, and by there not being a power of electing into the said Board any Persons but the said Official Commissioners and the said Professors, it often happens that there are no Persons, particularly versed in the Sciences of the Mathematics and Astronomy, resident in London, and belonging to the said Board; and that divers Persons of great Skill and Ability, whose services would be most beneficial to the Objects of the said Board, are by the said Constitution of the Board excluded therefrom: Be it therefore enacted by the King's most Excellent Majesty, by and with the Advice and Consent of the Lords Spiritual and Temporal, and Commons, in this present Parliament assembled, and by the Authority of the same, That the said recited Acts shall be and the same are hereby repealed.

II. And be it further enacted, That from and after the passing of this Act, the Lord High Treasurer of the United Kingdom of *Great Britain* and *Ireland*, or the First Commissioner for executing the said Office, the Lord High Admiral, or First Commissioner for executing the Office of Lord High Admiral of the United Kingdom of *Great Britain* and *Ireland*, and such other Commissioners for executing the Office of Lord High Admiral of the United Kingdom of *Great Britain* and *Ireland*, as may be Flag Officers in His Majesty's Fleet, the Speaker of the House of Commons, the President of the Committee of Council for Trade and Plantations, the Governor of the Royal Hospital for Seamen at *Greenwich*, the Judge of the High Court of Admiralty, the Secretaries of the Treasury, the Secretaries of the Admiralty, the Comptroller of the Navy, the President and Three Fellows of the Royal Society, the Royal Astronomer at *Greenwich*, the *Savilian*, *Lucasian*, *Plumian*, and *Lown-dian* Professors of the Mathematics and Astronomy at the Universities of *Oxford* and *Cambridge*, the Observer at the *Radcliffe* Observatory at *Oxford*, all now and for the time being, and Three other Persons well versed in the Sciences of Mathematics, Astronomy, or Navigation, to be annually selected, chosen, and named, as hereinafter provided, shall be Commissioners for discovering the Longitude at Sea, and for examining, trying, and judging all Proposals, Experiments, and Improvements relating to the same, and for rewarding Persons making useful Discoveries and Improvements in or connected with Navigation.

III. And be it further enacted, that the Three Members of the Royal Society, so to be Commissioners, shall be the Right Honourable *Charles* Lord *Colchester*, *Davies Gilbert*, Esquire, and Colonel *William Mudge*, and that in the event of any Vacancy by Death, Resignation, or Refusal to act, of any of the said Three Persons, or of any Person hereafter chosen to succeed them, such Vacancy shall be filled up by the Choice and Election of the President and Council of the Royal Society; and that the said three other Commissioners shall be Doctor *William Hyde Wollaston*, and Doctor *Thomas Young*, and Captain *Henry Kater*, who shall continue Commissioners until the First Day of *January*, One Thousand Eight Hundred and Twenty, after which Time the Three Persons to be the said last-mentioned Commissioners shall be annually, or as often as a Vacancy by Death, Resignation, or Refusal to act, may occur, selected, chosen, and named by the Lord High Admiral, or Commissioners for executing the Office of Lord High Admiral, and shall be Persons well versed in the Sciences of the Mathematics, Astronomy, or Navigation, and shall be generally resident in or near the City of *London*, and capable of attending at the Board of Commissioners, and of assisting in the Objects herein intrusted to the said Board.

IV. And whereas by the said recited Acts, and by divers other Acts passed from Time to Time, and all founded upon and referring to the said first-recited Acts, divers Duties and Authorities were

imposed and conferred upon the Commissioners constituted by the said recited Acts, and divers Sums of Money for various Purposes, and under different Conditions, were from Time to Time granted and provided to be employed and expended towards the Discovery of the Longitude at Sea, and for divers Purposes in such Acts mentioned, and for Rewards to such Persons as should ascertain the Longitude within certain Limits and Conditions therein specified; and for enabling the said Commissioners to cause a survey to be made of the Shores of *Great Britain* and *Ireland*, and ascertaining the Latitude and Longitude of the Capes, Promontories, and Headlands thereof: And whereas some of the Provisions of the said Acts have been repealed, and others thereof have expired; and it is expedient wholly to repeal the same, for the Purpose of re-enacting and conferring upon the new Commissioners such of the Powers, Authorities, and Duties at present vested in the old Commissioners, as are fit to be continued in force: Be it therefore enacted, That all and every Act, conferring any Duty, Authority, or Power on the Commissioners constituted by the said first-recited Acts, shall be and are hereby repealed.

V. And whereas the Longitude hath been ascertained within certain of the Limits and Conditions specified in the said Acts: And whereas certain other of the Limits and Conditions still subsisting are considered as impracticable, and have never been tried: And whereas it may conduce to the Advancement of Science, and to the Honour and Interest of this Country, that fit and proportionate Rewards should be provided for Persons who shall ascertain the Longitude within certain new Limits and Conditions: And whereas it is expedient that such Limits and Conditions should not be immutably fixed by Act of Parliament, but should be regulated on scientific Principles by the said Commissioners for the Discovery of the Longitude, and should be varied from Time to Time according to the Progress of Discoveries and the Advancement of Science: Be it enacted, That the said last-mentioned Commissioners shall from Time to Time, as they may see proper, propose, by their Memorial to His Majesty in Council, to direct and establish Three Scales of proportionate Rewards to be paid to any Person or Persons who shall, by any Principle not already made public, ascertain the Longitude within Three corresponding Scales of Limit and Condition, such Rewards not exceeding the respective Sums of Five Thousand Pounds, Seven Thousand Five Hundred Pounds, and Ten Thousand Pounds; and if His Majesty in Council shall be pleased to sanction and approve such Proposal, then that the same shall be published in the *London Gazette*, and that the said Commissioners shall have full Power and Authority to inquire into and examine all Proposals which may be made for finding the Longitude; and if on reasonable Experiment, to be judged of and certified by the said Commissioners, it shall be found that the Longitude hath been ascertained within any of the said Three Scales of Limit and Condition, agreeably to the said Order in Council, it shall be lawful to them to pay or cause to be paid the

proportionate Reward assigned to the Scale within which such Discovery or Experiment shall have ascertained the Longitude.

VI. And whereas it is expedient that the said Commissioners should be enabled to expend certain Sums towards making Experiments of Instruments, Modes, or Proposals, and for making and publishing Observations, Calculations, and Tables for ascertaining the Longitude, or towards improving or correcting such as may have been already made, or for other Purposes useful to Navigation: Be it enacted, That they may pay or expend any Sum or Sums of Money, not exceeding One Thousand Pounds in any one Year, towards the making, correcting, or publishing any such Experiments, Modes, Observations, Calculations, or Tables.

VII. And whereas it is expedient that the said Commissioners should be enabled to cause to be ascertained, as accurately as may be, the Latitude and Longitude of Places whereof the exact Situation hath not been already sufficiently ascertained: Be it enacted, That they may expend or cause to be expended any Sum not exceeding in the whole One Thousand Pounds in any one Year for such Purpose.

VIII. And whereas it may happen that Proposals, Inventions, and Tables, or Corrections and Amendments of former Proposals, Inventions, or Tables, ingenious in themselves and useful to Science, and which may deserve Encouragement, though they do not come within the Limits and Conditions specified for the before-mentioned Rewards, may be made to the said Commissioners; and it is expedient that they should be enabled to bestow such moderate Rewards upon the Person or Persons who may have made such Proposal, Invention, or Correction: Be it therefore enacted, That the said Commissioners may pay or cause to be paid such Sum not exceeding Five Hundred Pounds to any one Person for any one Proposal or Invention, or Two Thousand Pounds in one Year, as they may consider the said Proposals, Inventions, Tables, or Corrections, to deserve.

IX. And whereas by an Act passed in the Eighteenth Year of His late Majesty King *George* the Second, intituled, "An Act for giving a public Reward to such Person or Persons, being His Majesty's Subject or Subjects, as shall Discover a North-west Passage through *Hudson's Streights* to the *Western* and *Southern* Oceans of *America*," a Sum of Twenty Thousand Pounds was provided for the Owner or Owners of any Ship or Vessel which should first find out and sail through such Passage; and the Persons holding certain Offices therein named, for the time being, were appointed Commissioners for the said Discovery: And whereas by an Act passed in the Sixteenth Year of the Reign of His present Majesty, intituled, "An Act for giving a public Reward to such Person or Persons, being His Majesty's Subject or Subjects, as shall Discover a *Northern* Passage for Vessels by Sea between the *Atlantic* and *Pacific* Oceans, and also unto such as shall first approach by Sea within One Degree of the *Northern Pole*;" the Reward in the last-

recited Act was extended to the Commander or Commanders, Officers and Seamen, of any of His Majesty's Ships or Vessels, and to the Owner or Owners of any private Ship or Vessel which should find out and sail through any Passage by Sea between the *Atlantic* and *Pacific* Oceans, in any Direction or Parallel of the *Northern* Hemisphere to the North of the Fifty-second Degree of North Latitude; and further assigning a Reward of Five Thousand Pounds to the Commander or Commanders, Officers and Seamen, of any of His Majesty's Ships or Vessels, or the Owner or Owners of any private Ship or Vessel which should first approach within One Degree of the *Northern* Pole; and appointing the Commissioners of the Longitude to be Commissioners for executing this last-recited Act: And whereas many Advantages, both to Commerce and Science, may be expected from granting such proportionate Rewards, as well to such Person or Persons as may accomplish the Objects of the said Two last-mentioned Acts, and to such other Person or Persons as may approach thereto within certain Limits or Conditions: And whereas it is expedient that the Regulation of such Limits and Conditions, and the Decision, whether and how far such Object may have been accomplished, should be confided to the Commissioners for the Discovery of the Longitude at Sea appointed by this Act: Be it therefore enacted, That the said Two last-recited Acts shall be and they are hereby repealed.

X. And be it further enacted, That if any Ship or Ships, Vessel or Vessels, belonging to any of His Majesty's Subjects, or to His Majesty, shall first find out and sail through any Passage by Sea, between the *Atlantic* and *Pacific* Oceans, in any Direction or Parallel of the *Northern* Hemisphere, the Owner or Owners of such Ship or Ships, Vessel or Vessels, if belonging to any of His Majesty's Subjects, or the Commander or Commanders, Officers, Seamen, and Marines, of such Ships or Vessels, if belonging to His Majesty, so first finding out and sailing through such Passage, shall receive a Reward for such Discovery, of the Sum of Twenty Thousand Pounds.

XI. And whereas Ships employed both in the *Spitzbergen* Seas and in *Davis's* Streights may have Opportunities of approaching the *North* Pole: And whereas Approaches towards the *Northern* Pole may tend greatly to the Discovery of a Communication between the *Atlantic* and *Pacific* Oceans, as well as may be attended with many Advantages to Commerce and Science: Be it therefore enacted, That if any Ship or Ships, Vessel or Vessels, shall approach within One Degree of the *Northern* Pole, the Owner of such Ship or Vessel, Ships or Vessels, if belonging to any of His Majesty's Subjects, or the Commander or Commanders, Officers, Seamen, and Marines, of any Ship or Ships, Vessel or Vessels, if belonging to His Majesty, so first approaching within One Degree of the *Northern* Pole, shall be entitled to receive a Reward of Five Thousand Pounds.

XII. And for the Encouragement of Persons who may attempt

the said Passage, or approach to the *Northern Pole*, but not wholly accomplish the same; Be it enacted, That the said Commissioners for discovering the Longitude at Sea may, by their Memorial, propose to His Majesty in Council to direct and establish proportionate Rewards to be paid to such Person as aforesaid who shall first have accomplished certain Proportions of the said Passage or Approach; and if His Majesty in Council shall be pleased to sanction and approve the said Proposal, then that the same shall be published in the *London Gazette*; and any Person or Persons accomplishing such Passages, or the specified Proportions of them, shall be entitled, on the Award of the said Commissioners, to receive such total or proportionate Sums as may have been offered for the Object which he or they may have then accomplished.

XIII. And in order to ascertain who are the first Discoverers of the said *Northern Passage* into the *Pacific Ocean*, and who are the first Approachers to within One Degree of the *Northern Pole*, and to whom either the whole Rewards or the proportionate Rewards by this Act respectively given do belong; Be it further enacted, That the Commissioners for the Discovery of the Longitude at Sea be authorized and empowered to call for the respective Journal or Journals, Book or Books, and Papers, kept on board the respective Ship or Ships, Vessel or Vessels, of the Claimant or Claimants respectively; and also to examine upon Oath all such Persons as they the said Commissioners shall think proper, with regard to any Claim or Claims, as well any Person or Persons produced by the respective Claimant or Claimants, as any other Person or Persons who may seem capable of giving any Information; which Oath the said Commissioners are hereby empowered and required to administer; and the said Commissioners being fully satisfied upon such Examination and Proof, that such *Northern Passage* is effectually discovered and sailed through, or that such Approach within One Degree of the *Northern Pole*, or any specified Proportion of the said Passage or Approach, shall have been made and accomplished, they are hereby authorized to pay or cause to be paid the said Rewards, or such Proportion of them as the Claimant or Claimants may under this Act, or under such Order in Council, be entitled to receive.

XIV. Provided always, and be it further enacted, That if the said Rewards, or either of them, shall be claimed by and adjudged to the Commander or Commanders, Officers, Seamen, and Marines, of any Ship or Ships, Vessel or Vessels, belonging to His Majesty, the same shall be disposed in favour of and distributed among such Commander or Commanders, Officers, Seamen, and Marines, in such Proportions as shall be directed by His Majesty in Council, and in no other manner.

XV. And be it further enacted, That the Executors, Administrators, and Assigns of any Person or Persons to whom any Sum whatsoever shall be awarded by the Commissioners for the Dis-

covery of the Longitude, shall be entitled to receive the same in the event of the Death of such Person or Persons.

XVI. And whereas the Publication of the Nautical Almanac, constructed by proper Persons, under the Directions of the said Commissioners for the Discovery of the Longitude at Sea, is of great Importance to the safety of Ships and Persons, and highly conducive to the general Interests of Commerce and Navigation; Be it therefore enacted, That it shall and may be lawful to and for the said Commissioners to cause such Nautical Almanacs, or other useful Tables, to be constructed, and to print, publish, and vend, or cause to be printed, published, and vended, any Nautical Almanac or Almanacs, or other useful Table or Tables, which they shall from Time to Time judge necessary and useful, in order to facilitate the Method of discovering the Longitude at Sea; any Law, Statute, exclusive Privilege, private Charter, or other Custom, to the contrary thereof notwithstanding.

XVII. And be it enacted, That no Person or Persons shall print, publish, or vend, or cause to be printed, published, or vended, any Nautical Almanac or Almanacs, or other Table or Tables, constructed under the Direction of the said Commissioners; without being first licensed by the said Commissioners; and if any Person or Persons not so licensed, or not being authorized by the Person or Persons so licensed by the said Commissioners, shall print, publish, or vend, or cause to be printed, published, or vended, any such Almanac or Almanacs, or other Table or Tables, every such Person or Persons shall, for every Copy of such Nautical Almanac or Table so printed, published, or vended, forfeit and pay the Sum of Twenty Pounds, to be recovered by Action of Debt, Bill, Plaint, or Information, in any of His Majesty's Courts of Record at *Westminster*; and that one Moiety of such Penalty and Forfeiture shall be to His Majesty, His Heirs, and Successors, and the other Moiety to him or them that shall prosecute, inform, and sue for the same.

XVIII. And be it further enacted, That the said Penalty or Forfeiture shall be sued, informed, and prosecuted for by the Secretary of the said Commissioners of the Longitude for the time being, or by some other Person or Persons authorized by the said Commissioners, and shall not be sued, informed, or prosecuted for by any other Person or Persons whomsoever, and that such Suits, Prosecutions, and Informations, shall not abate by reason of the Death of such Prosecutors or any of them, but shall be continued, in the case of a sole Plaintiff or Informer dying before Judgment obtained, in the Name of the Secretary of the said Commissioners for the Time being.

XIX. And be it further enacted, That no such Nautical Almanac or Almanacs, so published under the Directions of the said Commissioners, shall be subject or liable to any Stamp Duty whatsoever.

XX. And be it further enacted, That there shall be annually paid to each of the Three last-named Commissioners and their Successors, to be annually named according to the provisions of

this Act, such annual Sum as His Majesty, by any Order in Council, shall be pleased to direct.

XXI. And whereas it is necessary to continue the Appointment of a Secretary to the Board of Commissioners for discovering the Longitude: And whereas it is highly expedient to the Interests of Navigation, and the Honour of this Country, that the said Nautical Almanac should be accurately computed, compared, and published, and that the Method of finding the Longitude by Timekeepers should also be encouraged; and that the Timekeepers belonging to His Majesty for the Use of His Ships of War should be carefully examined and regulated: Be it further enacted, That some Person of competent Skill and Ability shall be nominated and appointed by the Lord High Admiral or Commissioners of the Admiralty to be Secretary to the said Board of Commissioners and for superintending, under the Directions of the Board in general, and the Astronomer Royal in particular, the due and correct Publication of the Nautical Almanac, and for taking care of and regulating such Timekeepers as may be intrusted to his care by the Lord High Admiral or Commissioners of the Admiralty.

XXII. And be it further enacted, That the said Secretary shall hold his said Office during the Pleasure of the Lord High Admiral or Commissioners of the Admiralty; and for his Trouble and Pains therein he shall receive such annual Salary as His Majesty, by any Order in Council, may please to direct; but if it shall so happen that a Person shall not be found competent to execute the Three several Duties of Secretary to the said Board, and of superintending the Publication of the Nautical Almanac, and the Care and Regulation of Timekeepers, it shall be lawful to the said Commissioners to propose to His Majesty in Council to divide the said Duties, and assign them to several Persons, and to apportion to each Person such Part of the Salary established for the performance of the united Duties, as may seem to them fit and proportionate to the several Duty or Duties to be performed by such Person.

XXIII. And be it further enacted, That the said Salaries to the Three Annual Commissioners, and the said Secretary or Persons performing the last-mentioned Duties, shall be annually placed on the Ordinary Estimate of the Navy.

XXIV. And be it further enacted, That no receipt of any Salary or Reward under this Act shall prevent any Officer entitled to any Military or Naval Half-pay from receiving such Half-pay in addition to any such Salary or Reward.

XXV. And be it further enacted, That the Commissioners for discovering the Longitude at Sea, shall, at the beginning of every Year, make an Estimate of the Sum or Sums which they shall deem to be necessary for executing the Purposes of this Act in such Year, which Estimate shall be transmitted to the Secretary of the Admiralty, and, on being approved or amended by the Lord High Admiral or Commissioners of the Admiralty, shall be placed on the Ordinary Estimate of the Navy.

XXVI. And be it further enacted, That any Sum or Sums of Money to be paid under the Authority of this Act shall be paid, upon Certificates under the Hands and Seals of the Commissioners for the Discovery of the Longitude at Sea, to the Commissioners of the Navy for the time being; and the Commissioners of the Navy shall forthwith make out a Bill or Bills for the Sum or Sums contained in such Certificate or Certificates, payable by the Treasurer of the Navy, and such Sum or Sums of Money the said Treasurer of the Navy is hereby required to pay immediately to the Person or Persons mentioned in the said Certificate or Certificates, out of any Money which shall be in his Hands unapplied for the Use of the Navy: Provided always, that all such Sums of Money as shall exceed the Sum of Five Thousand Pounds shall be certified under the Hands and Seals of Two-thirds at least of the said Commissioners, and all such Sums as shall exceed the Sum of One Thousand Pounds shall be certified under the Hands and Seals of the major part of them, and that all such Sums as shall not exceed One Thousand Pounds shall be certified under the Hands and Seals of any Five or more of them; such Certificate being in every Case whatsoever signed by One at least of the following Commissioners; that is to say, the Lord High Treasurer of the United Kingdom of *Great Britain and Ireland*, or the First Commissioner of the Treasury, the Lord High Admiral of the United Kingdom of *Great Britain and Ireland*, or First Commissioner of the Admiralty, the Secretaries of the Treasury, and the Secretaries of the Admiralty.

XXVII. And be it further enacted, That in any other respects where any Power or Authority is vested in the Commissioners under this Act, the same may be exercised by any Five or more Commissioners at the Board assembled, in as full and ample a Manner as if the whole Commissioners were then and there present; provided always, that at every such Board One of the following Commissioners at the least shall be present, that is to say, the First or one other of the Commissioners, or one of the Secretaries of the Admiralty; and that also Three other of the following Commissioners at the least shall be present, that is to say, the President of the Royal Society, the Astronomer Royal, the Professors and Observer at the Two Universities, and the Three Commissioners annually elected and receiving Salaries as aforesaid.

XXVIII. And be it further enacted, That there shall be held at least Four stated Meetings of the said Commissioners within every Year, to be held on such Days as His Majesty by any Order in Council may appoint, and such other Meetings as from Time to Time may be necessary; of all which Meetings due notice shall be given to the said Commissioners respectively.

Anno Primo & Secundo Georgii IV. Regis.

C A P. II.

An Act to amend an Act, of the Fifty-eighth Year of His late Majesty, for more effectually discovering the Longitude at Sea, and encouraging Attempts to find a Northern Passage between the *Atlantic and Pacific* Oceans, and to approach the *Northern Pole*.

[23d February, 1821.]

WHEREAS by an Act passed in the Fifty-eighth Year of His late Majesty, intituled, *An Act for more effectually discovering the Longitude at Sea, and encouraging Attempts to find a Northern Passage between the Atlantic and Pacific Oceans, and to approach the Northern Pole*, it was enacted, that if any Ship or Ships, Vessel or Vessels, belonging to any of His Majesty's Subjects, or to His Majesty, shall first find out and sail through any Passage by Sea between the *Atlantic and Pacific* Oceans, in any Direction or Parallel of the Northern Hemisphere, the Owner or Owners of such Ship or Ships, Vessel or Vessels, if belonging to any of His Majesty's Subjects, or the Commander or Commanders, Officers, Seamen, and Marines, of such Ships or Vessels, if belonging to His Majesty, so first finding out and sailing through such Passage, shall receive a Reward for such Discovery of Twenty Thousand Pounds: And whereas it was further enacted, that if any Ship or Ships, Vessel or Vessels, should approach within One Degree of the *Northern Pole*, the Owner of such Ship or Vessel, Ships or Vessels, if belonging to any of His Majesty's Subjects, or the Commander or Commanders, Officers, Seamen, and Marines, of any Ship or Ships, Vessel or Vessels, if belonging to His Majesty, so first approaching within One Degree of the *Northern Pole*, should be entitled to receive a Reward of Five Thousand Pounds: And whereas it was further enacted, for the Encouragement of Persons who may attempt the said Passage, or approach to the *Northern Pole*, but not wholly accomplish the same, that the Commissioners for discovering the Longitude at Sea, might by their Memorial propose to His Majesty in Council to direct and establish proportionate Rewards to be paid to such Persons as aforesaid, who shall first have accomplished certain proportions of the said Passage or Approach; and if His Majesty in Council should be pleased to

sanction and approve the said Proposal, then that the same should be published in the *London Gazette*, and any Person or Persons accomplishing such Passages, or the specified Proportions of them, should be entitled on the Award of the Commissioners to receive such total or proportionate Sums as may have been offered for the Object which he or they may have then accomplished: And whereas Doubts have arisen whether such proportionate Rewards be over and above the said Sums of Twenty Thousand and Five Thousand Pounds respectively, or only Parts and Proportions of the said Sums: For the removal of all such Doubts, be it enacted by the King's most excellent Majesty, by and with the Advice and Consent of the Lords Spiritual and Temporal, and Commons in this present Parliament assembled, and by the Authority of the same, That from and after the passing of this Act, such proportionate Rewards shall be held and taken to be Proportions and Parts only of the said Sums of Twenty Thousand and Five Thousand Pounds respectively, and that such proportionate Rewards as His Majesty may be pleased hereafter to direct and establish by His Order in Council under the said Act, shall be Parts and Proportions only of the said Sums, so that no more than the said respective Sums of Twenty Thousand and Five Thousand Pounds shall be paid or payable under such Order in Council, for the Accomplishment of the whole of the said Passage or Approach respectively, whether the same shall be attempted or accomplished by Proportions or Parts, or by One Voyage only.

II. And be it further enacted and declared, That it shall and may be lawful for His Majesty in Council to revoke, annul, alter, or amend, as from Time to Time may seem necessary and proper, any Order or Orders in Council already made, or hereafter to be made, under the Authority of the said recited Act or of this Act.

ORDER IN COUNCIL.

At the Court at *Carlton House*,
the 23d *February*, 1821.

Present, The KING'S MOST EXCELLENT MAJESTY,
In Council.

WHEREAS there was this Day read at the Board a Memorial from the Commissioners for discovering the Longitude at Sea, in the words following: viz.

"Whereas by an Act of the Fifty-eighth Year of His late Majesty King *George* the Third, intituled, "An Act for more effectually discovering the Longitude at Sea; and encouraging attempts to find a Northern Passage between the *Atlantic* and *Pacific* Oceans, and to approach the *Northern Pole*;" and by another Act of the present Session of Parliament to amend the said Act, it is provided that for encouragement of Persons who may attempt the said Passage, or approach to the *Northern Pole*, but not wholly accomplish the same, We the Commissioners for discovering the Longitude at Sea, may by Our Memorial propose to Your Majesty in Council, to direct and establish proportionate Rewards to be paid to such Person as aforesaid, who shall first have accomplished certain Proportions of the said Passage or Approach:

"And whereas it appears that the progress of Discovery has already advanced on the Northern Coast of *North America*, and within the Arctic Circle, as far as One Hundred and Thirteen Degrees of West Longitude, or thereabouts, from *Greenwich*, but has not arrived Northwards, according to any well authenticated Accounts, so far as Eighty-one Degrees of North Latitude:

"We your Memorialists beg leave most humbly to represent these particulars for Your Majesty's Consideration, and to submit, with all humility, whether Your Majesty may not be graciously pleased to establish the following Scale of Rewards, to be allotted according to the intentions of the said Acts.

"1. To the first Ship belonging to any of Your Majesty's Subjects, or to Your Majesty, that shall reach the Longitude of 130° West from *Greenwich*, by sailing within the Arctic Circle £
5,000.

"To the first Ship as aforesaid, that shall reach the Longitude of 150° West from *Greenwich*, by sailing within the Arctic Circle, a further Sum of 5,000.

"To the first Ship as aforesaid, that shall reach the *Pacific* Ocean by a North-West Passage, the further Sum of, 10,000.

"2. To the first Ship as aforesaid, that shall reach to
83° of North Latitude..... 1,000.
To 85° a further Sum of..... 1,000.
To 87° a further Sum of..... 1,000.
To 88° a further Sum of..... 1,000.
To 89° or beyond, a further Sum of 1,000.

“And if Your Majesty should graciously approve these proposals, We further, with all humility, submit whether Your Majesty would not be pleased by your Order in Council to revoke, cancel, and annul His late Majesty's Order in Council of the 19th March, 1819, establishing the Scale of Rewards therein contained for the accomplishment of certain Proportions of the said Passage or Approach.”

His Majesty, having taken the said Memorial into consideration, was pleased, by and with the advice of His Privy Council, to approve thereof; and His Majesty doth hereby establish the Scale of Rewards proposed in the said Memorial.

And His Majesty is further pleased, by and with the advice aforesaid, to revoke, cancel, and annul the Order in Council of the Nineteenth of March, 1819, establishing the Scale of Rewards therein contained; and the same is hereby revoked, cancelled, and annulled accordingly.

JAMES BULLER.

By the COMMISSIONERS appointed by the Act of the Fifty-eighth Year of His late Majesty King *George* the Third, intituled, “An Act for more effectually discovering the Longitude at Sea, and encouraging Attempts to find a Northern Passage between the *Atlantic* and *Pacific* Oceans, and to approach the *Northern Pole*.”

WE do hereby, in pursuance of the Powers vested in us by the said Act, license, authorize, and empower you to print the Nautical Almanacs and Astronomical Ephemerides for the Years 1825 to 1831; together with such other useful Tables for facilitating the Methods of discovering the Longitude at Sea, as have been or may be constructed under our Direction, and which will be delivered to you by or by the Direction of JOHN POND, Esq. His Majesty's Astronomer Royal at *Greenwich*; for all which this shall be your sufficient Warrant; reserving to ourselves, nevertheless, and to our Successors, Commissioners of the aforesaid Board, or to the proper Part of them, Power to revoke and annul the Appointment hereby made, by Writing signed by us or them, whenever we or they shall see Occasion. Given under our Hands, the Seventh Day of February, 1822.

THOMAS TURTON.

HENRY KATER.

THOMAS F. COLBY.

W. LAX.

S. P. RIGAUD.

H. DAVY.

DAVIES GILBERT.

JOHN F. W. HERSCHEL.

H. HOTHAM.

J. W. CROKER.

JOHN BARROW.

W. H. WOLLASTON.

JOHN POND, A. R.

ROBT. WOODHOUSE.

By Command,

THOMAS YOUNG, Secretary.

To Mr. Thomas Bensley, Printer,
Crane Court, Fleet Street.

By the COMMISSIONERS appointed by the Act of the Fifty-eighth Year of His late Majesty King *George* the Third, intituled, "An Act for more effectually discovering the Longitude at Sea, and encouraging Attempts to find a Northern Passage between the *Atlantic* and *Pacific* Oceans, and to approach the *Northern Pole*."

WE do hereby, in pursuance of the Powers vested in us by the said Act, license, authorize, and empower you to publish and vend, and cause to be publised and vended, all such Nautical Almanacs and Astronomical Ephemerides, and such other useful Tables, constructed under our Direction, as have hitherto been printed, or shall hereafter be printed for the several Years next ensuing, down to the Year 1831 inclusive; for all which this shall be your sufficient Warrant; reserving to ourselves, nevertheless, and to our Successors, Commissioners of the said Board, or to the proper Part of them, Power to revoke and annul the Appointment hereby made, by Writing signed by us or them, whenever we or they shall see Occasion. Given under our Hands the Seventh Day of *February*, 1822.

HENRY KATER.
THOMAS F. COLBY.
ROBT. WOODHOUSE.
THOMAS TURTON.
JOHN F. W. HERSCHEL.

H. HOTHAM.
J. W. CROKER.
JOHN BARROW.
H. DAVY.
DAVIES GILBERT.
S. P. RIGAUD.
W. LAX.

By Command,

THOMAS YOUNG, *Secretary*.

To Mr. John Murray, Bookseller,
Albemarle Street.

PRINCIPAL ARTICLES

OF

THE ALMANAC of 1831.

Chronological Cycles.

Dominical Letter	- - - B
Lunar Cycle, or Golden Numb.	8
Epact	- - - - - 17
Solar Cycle	- - - - - 20
Roman Indiction	- - - - 4
Julian Period	- - - - 6544

Ember Days.

February	- 23, 25, and 26.
May	- - - 25, 27, and 28.
September	- 21, 23, and 24.
December	- 14, 16, and 17.

MOVEABLE FEASTS.

Septuagesima Sunday	- - Jan. 30	Low Sunday	- - - - - Apr. 10
Quinq. or Shrove Sunday	Feb. 13	Rogation Sunday	- - - May 8
Ash Wed. or 1 Day of Lent	Feb. 16	Asc. Day, or Holy Thurs.	May 12
Mid-Lent Sunday	- - - Mar. 13	Whit Sunday	- - - - May 22
Palm Sunday	- - - - Mar. 27	Trinity Sunday	- - - - May 29
EASTER DAY	- - - - Apr. 3	Advent Sunday	- - - - Nov. 27

TERMS.

London.			Oxford.		Cambridge.	
Names	Begins	Ends	Begins.	Ends	Begins	Ends
Hilary, or Lent,	Jan. 24	Feb. 12	Jan. 14	Mar. 26	{ Jan. 13	—
					{ Div. Feb. 17	Midn.
					{ —	Mar. 25
Easter,	April 20	May 16	April 13	May 21	{ April 13	—
					{ Div. May 26	Noon.
					{ —	July 8
Trinity,	June 3	June 22	May 25	July 9		—
Michael,	Nov. 7	Nov. 28	Oct. 10	Dec. 17	{ Oct. 10	—
					{ Div. Nov. 12	Midn.
					{ —	Dec. 16

Oxford Act July 5. — Camb. Commencement July 5.

ECLIPTIC AND EQUINOCTIAL.

Obliquity of the Ecliptic.	1831.		Equation of Equinoctial Points.
23. 27. 42, 1	Mean -	Jan. 1.	"
23. 27. 33, 0	True -	Jan. 1.	- 8, 0
23. 27. 34, 1	- - -	Apr. 1.	- 9, 3
23. 27. 33, 7	- - -	July 1.	-10, 6
23. 27. 34, 9	- - -	Oct. 1.	-11, 7
23. 27. 34, 6	- - -	Dec. 31.	-12, 9

SOLAR AND LUNAR ECLIPSES

IN THE YEAR 1831.

Feb. 12. *The SUN eclipsed, invisible at Greenwich.*

♄ at 4^h. 58½^m, in Long. 10°. 23°. 18½', ♀'s Lat. 42½' N.

☉ will be centrally eclipsed on the Meridian at 5^h. 26^m,
in Long. 81°. 28½' West, and in Lat 35°. 5½' North.

Feb. 26. *The MOON eclipsed, partly visible at Greenwich.*

H. M.

Beginning of the Eclipse -	3. 14½
Middle -	4. 42½
Ecliptic ♄ -	4. 49½
♀'s upper Limb rises -	5. 15
End of the Eclipse -	6. 11

Digits eclipsed, 8°. 18', from the northern side of the
☉'s shadow, or on the ♀'s southern limb.

Aug. 7. *The SUN eclipsed, invisible at Greenwich.*

♄ at 10^h. 3^m, in Long. 4°. 14°. 34½', ♀'s Lat. 39½' S.

☉ will be centrally eclipsed on the Meridian at 10^h. 24½^m,
in Long. 156°. 2' West, and in Lat. 26°. 35½' South.

Aug. 22. *The MOON eclipsed, invisible at Greenwich.*

H. M.

Beginning of the Eclipse -	20. 40½
Middle -	21. 57
Ecliptic ♄ -	22. 5½
End of the Eclipse -	23. 13½

Digits eclipsed, 5°. 48', from the southern side of the
☉'s shadow, or on the ♀'s northern limb.

EXPLANATION OF THE CHARACTERS

USED IN THE

ASTRONOMICAL EPHEMERIS.

The PLANETS, and their relations.

☉ The Sun.	♂ Mars.
☾ The Moon.	♃ Jupiter.
☿ Mercury.	♄ Saturn.
♀ Venus.	♅ Georgian.
♁ The Earth.	

- ♊ A Planet's Ascending Node.
 - ♋ The Descending Node.
 - ♌ Conjunction, or Planets situated in the same Longitude.
 - ☐ Quadrature, or Planets situated in Longitudes differing 3 Signs from each other.
 - ♍ Opposition, or Planets situated in opposite Longitudes, or differing 6 Signs from each other.
- | | | |
|-----------|----------------|----------------|
| N. North. | Inf. Inferior. | Im. Immersion. |
| S. South. | Sup. Superior. | Em. Emersion. |

SIGNS of the ZODIAC.

First	♈ Aries.	(0 + ..)	7th	♎ Libra.	(6 + ..)
2d	♉ Taurus.	1	8th	♏ Scorpio.	7
3d	♊ Gemini.	2	9th	♐ Sagittarius.	8
4th	♋ Cancer.	3	10th	♑ Capricornus.	9
5th	♌ Leo.	4	11th	♒ Aquarius.	10
6th	♍ Virgo.	5	12th	♓ Pisces.	11

ERRATUM 1829.

Page 192, Ann. Var. of γ Urs. Maj. for $3^s, 37$ read $2^s, 37$

ERRATA 1830.

Page

- 22, The Sun, on 2d, *sub.* $2''$ at 3^h , $3''$ at 6^h , and $5''$ at 9^h
 33, Regulus, on 31st, *add* $3''$ at 21^h , and $5''$ at N. of Apr. 1
 35, The Sun, on 31st, *sub.* $2''$ at 18^h , $3''$ at 21^h , and $4''$ at N. of Apr. 1
 Aldebaran, 31st, *sub.* $2''$ at 18^h , $2''$ at 21^h , and $5''$ at N. of Apr. 1
 41, δ 's Long. *sub.* $5''$ at 1st, N., $10''$ at M., and $6''$ at 2d N.
 42, δ 's R. A. *sub.* $5''$ at 1st, N., $10''$ at M., and $6''$ at 2d N.
 133, Phenomena, for $26^d. 17^h$ read $26^d. 19^h$
 176, R. A. of ϵ Orionis, Decemb. 31st, for $39^s, 47$ read $39^s, 27$
 192, Ann. Var. of β Urs. Maj. for $2^s, 71$ read $3^s, 71$
 197, Time of nearest Approach of $\zeta \approx$ for $18^d. 7^h. 15^m. 11^s$ read
 $18^d. 8^h. 15^m. 11^s$

In some of the first Copies.

- xxiv, Ecl. on Mar. 9, read Ecl. 8 $1^h. 30\frac{3}{4}^m$ and Mid. $1^h. 31\frac{3}{4}^m$
 Ecl. on Sept. 2, read Ecl. 8 $10^h. 37\frac{1}{2}^m$ and Mid. $10^h. 38^m$
 44, Spica μ , 1, N. for 23 S. read 27 S.; and *add* $6''$ at III^h,
 $9''$ at VI^h, $10''$ at IX^h, $9''$ at M., $9''$ at XV^h, $8''$ at XVIII^h,
 $7''$ at XXI^h
 Spica μ , 2, N. *add* $5''$; at III^h *add* $3''$; at VI^h *add* $2''$
 46, The Sun, 1, N. for 40 S. read 36 S.; at III^h *subt.* $5''$; at
 VI^h, $8''$; at IX^h, $10''$; at M., $10''$; at XV^h, $9''$; at XVIII^h,
 $8''$; at XXI^h, $7''$
 Sun, 2, N. *subt.* $6''$; at III^h, $4''$; at VI^h, $3''$
 Aldebaran, 1, N. *subt.* $5''$; at III^h, $6''$; at VI^h, $8''$; at IX^h,
 $10''$; at M., $10''$; at XV^h, $9''$; at XVIII^h, $8''$; XXI^h, $8''$
 Aldebaran, 2, N. *subt.* $6''$; at III^h, $4''$; at VI^h, $2''$

These Pages have been cancelled.

Days of the Week.	Days of the Month.	<i>Sundays, and other remarkable Days.</i>	<i>Phases of the MOON.</i>
Sa.	1	<i>Circumcision.</i>	<div>D. H. M.</div> <div>☾ Last Quarter . . . 5. 10. 54</div> <div>● New Moon . . . 13. 13. 37</div> <div>☽ First Quarter . . . 20. 19. 29</div> <div>○ Full Moon . . . 27. 14. 33</div>
Sun.	2	<i>2d Sun. after Christmas.</i>	<i>Other Phenomena.</i>
M.	3		D. H. M.
Tu.	4		1. 17. - ☽ α ♈.
W.	5		2. 4. - ☽ ε ♈.
Th.	6	<i>Epiphany.</i>	3. 3. - ☽ σ ♈.
F.	7		3. 11. - ☽ 1 ζ ♋.
Sa.	8	<i>Lucian.</i>	4. 21. - ☽ 1 γ ♎.
Sun.	9	<i>1st Sun. after Epiphany.</i>	8. 15. - ☽ γ ♎.
M.	10		9. 2. - ☽ ψ ♎.
Tu.	11		9. 19. - ☽ φ Oph.
W.	12		10. 21. - ☽ ♄ ♏.
Th.	13	<i>Hilary. Camb. Term beg.</i>	12. 18. - ☽ ♀ ♏.
F.	14	<i>Oxford Term begins.</i>	13. 0. - ☽ d ♏.
Sa.	15		13. 21. - ☽ ♀ ♏.
Sun.	16	<i>2d Sun. after Epiphany.</i>	15. 2. - ☽ ♄.
M.	17		17. - - ☽ Stationary.
Tu.	18	<i>Prisca.</i>	17. 2. - ☽ λ ♏.
W.	19		17. 12. - ☽ φ ♏.
Th.	20	<i>Fabian. In 8 d. of St. Hil.</i>	20. 5. 33 ☾ enters ♏.
F.	21	<i>Agnes. [1 ret.]</i>	20. 7. - ☽ ♄ ♏.
Sa.	22	<i>Vincent.</i>	21. 4. - ☽ 2 ξ Ceti.
Sun.	23	<i>3d Sun. after Epiphany.</i>	21. 11. - ☽ μ Ceti.
M.	24	<i>Hilary Term begins.</i>	22. 4. - ☽ ♄.
Tu.	25	<i>Conversion of St. Paul.</i>	22. 7. - ☽ f ♏.
W.	26		23. 3. - ☽ γ ♏.
Th.	27	<i>In 15 d. of St. Hil. 2 ret.</i>	23. 4. - ☽ 1 δ ♏.
F.	28	<i>[D. of Sussex b.</i>	23. 5. - ☽ 2 δ ♏.
Sa.	29	<i>K. Geo. IV. Access. 1820.</i>	23. 8. - ☽ ♀ ♏.
Sun.	30	<i>Septuagesima Sunday.</i>	23. 9. - ☽ α ♏.
M.	31	<i>[K. Char. I. Martyr.</i>	29. 2. - ☽ α ♏.
		<i>K. Geo. IV. procl. 1820.</i>	29. 14. - ☽ ε ♏.
			30. 3. - ☽ γ ♏.
			30. 5. - ☽ 2 β ♏.
			30. 13. - ☽ σ ♏.
			31. 13. - ☽ δ ♏.

Days of the Week.	Days of the Month.	THE SUN's			Diff.	Equation of Time.	Diff.
		Longitude.	Rt. Ascen.	Declin.		Add to app. Time.	
			in Time.	South.			
		S. D. M. S.	H. M. S.	D. M. S.	M. S.	M. S.	S.
Sa.	1	9. 10. 23. 58	18. 45. 15. 2	23. 3. 5		3. 41, 7	
Sun.	2	9. 11. 25. 8	18. 49. 40. 1	22. 58. 5	5. 0	4. 10, 0	28, 3
M.	3	9. 12. 26. 18	18. 54. 4. 7	22. 52. 37	5. 28	4. 37, 9	27, 9
Tu.	4	9. 13. 27. 29	18. 58. 28. 9	22. 46. 42	5. 55	5. 5, 5	27, 6
W.	5	9. 14. 28. 39	19. 2. 52. 8	22. 40. 19	6. 23	5. 32, 7	27, 2
					6. 49		26, 9
Th.	6	9. 15. 29. 50	19. 7. 16. 2	22. 33. 30		5. 59, 6	
F.	7	9. 16. 31. 0	19. 11. 39. 2	22. 26. 14	7. 16	6. 25, 9	26, 3
Sa.	8	9. 17. 32. 11	19. 16. 1. 8	22. 18. 31	7. 43	6. 51, 8	25, 9
Sun.	9	9. 18. 33. 22	19. 20. 23. 8	22. 10. 22	8. 9	7. 17, 2	25, 4
M.	10	9. 19. 34. 32	19. 24. 45. 3	22. 1. 47	8. 35	7. 42, 1	24, 9
					9. 1		24, 3
Tu.	11	9. 20. 35. 43	19. 29. 6. 2	21. 52. 46		8. 6, 4	
W.	12	9. 21. 36. 53	19. 33. 26. 6	21. 43. 19	9. 27	8. 30, 2	23, 8
Th.	13	9. 22. 38. 3	19. 37. 46. 4	21. 33. 27	9. 52	8. 53, 3	23, 1
F.	14	9. 23. 39. 12	19. 42. 5. 5	21. 23. 10	10. 17	9. 15, 8	22, 5
Sa.	15	9. 24. 40. 21	19. 46. 23. 9	21. 12. 29	10. 41	9. 37, 6	21, 8
					11. 6		21, 2
Sun.	16	9. 25. 41. 29	19. 50. 41. 7	21. 1. 23		9. 58, 8	
M.	17	9. 26. 42. 36	19. 54. 58. 8	20. 49. 52	11. 31	10. 19, 3	20, 5
Tu.	18	9. 27. 43. 43	19. 59. 15. 2	20. 37. 59	11. 53	10. 39, 1	19, 8
W.	19	9. 28. 44. 48	20. 3. 30. 8	20. 25. 41	12. 18	10. 58, 1	19, 0
Th.	20	9. 29. 45. 53	20. 7. 45. 6	20. 13. 1	12. 40	11. 16, 3	18, 2
					13. 3		17, 5
F.	21	10. 0. 46. 56	20. 11. 59. 7	19. 59. 58		11. 33, 8	
Sa.	22	10. 1. 47. 59	20. 16. 13. 0	19. 46. 33	13. 25	11. 50, 5	16, 7
Sun.	23	10. 2. 49. 0	20. 20. 25. 5	19. 32. 46	13. 47	12. 6, 3	15, 8
M.	24	10. 3. 50. 0	20. 24. 37. 1	19. 18. 37	14. 9	12. 21, 4	15, 1
Tu.	25	10. 4. 50. 58	20. 28. 48. 0	19. 4. 7	14. 30	12. 35, 7	14, 3
					14. 51		13, 4
W.	26	10. 5. 51. 55	20. 32. 58. 0	18. 49. 16		12. 49, 1	
Th.	27	10. 6. 52. 52	20. 37. 7. 2	18. 34. 5	15. 11	13. 1, 7	12, 6
F.	28	10. 7. 53. 47	20. 41. 15. 6	18. 18. 33	15. 32	13. 13, 5	11, 8
Sa.	29	10. 8. 54. 42	20. 45. 23. 2	18. 2. 42	15. 51	13. 24, 5	11, 0
Sun.	30	10. 9. 55. 35	20. 49. 30. 0	17. 46. 32	16. 10	13. 34, 7	10, 2
					16. 30		9, 4
M.	31	10. 10. 56. 28	20. 53. 35. 9	17. 30. 2	16. 48	13. 44, 1	8, 6

Days	Time of ☉'s Semidiam. passing Merid.	THE SUN'S			Place of the ☉'s Node.
		Semi- diameter.	Hourly Motion.	Logar. Distance.	
	M. S.	M. S.	M. S.		S. D. M.
1	1. 10, 8	16. 17, 8	2. 32, 9	9. 992637	5. 3. 40
7	1. 10, 5	16. 17, 7	2. 32, 9	9. 992699	5. 3. 21
13	1. 10, 1	16. 17, 4	2. 32, 8	9. 992837	5. 3. 2
19	1. 9, 5	16. 16, 9	2. 32, 6	9. 993032	5. 2. 43
25	1. 8, 9	16. 16, 3	2. 32, 4	9. 993296	5. 2. 24

The ECLIPSES of the SATELLITES of JUPITER
are not visible this Month, Jupiter being too near the Sun.

Days	THE PLANETS'							
	Heliocentric		Geocentric		Declin.	Rt. Asc. in Time.	Passage Merid.	
	Long.	Lat.	Long.	Lat.				
	S. D. M.	D. M.	S. D. M.	D. M.	D. M.	H. M.	H. M.	
♄	Gr. Elong. 11 ^d .				MERCURY.			
					Inf. ♂ 26 ^d . 5 ^h .			
1	11. 12. 52	6. 16 S	9. 26. 19	1. 57 S	22. 49 S	19. 55	1. 10	
4	11. 26. 27	5. 22	10. 0. 47	1. 41	21. 38	20. 14	1. 15	
7	0. 11. 19	4. 2	10. 4. 56	1. 17	20. 17	20. 30	1. 19	
10	0. 27. 33	2. 16	10. 8. 32	0. 45	18. 52	20. 45	1. 20	
13	1. 15. 3	0. 9 S	10. 11. 15	0. 3 S	17. 28	20. 55	1. 17	
16	2. 3. 32	2. 5 N	10. 12. 44	0. 46 N	16. 16	21. 0	1. 9	
19	2. 22. 27	4. 8	10. 12. 38	1. 41	15. 25	20. 58	0. 55	
22	3. 11. 10	5. 44	10. 10. 48	2. 33	15. 5	20. 50	0. 34	
25	3. 29. 5	6. 41	10. 7. 38	3. 14	15. 15	20. 37	0. 8	
28	4. 15. 45	7. 0	10. 3. 54	3. 35	15. 48	20. 21	23. 32	
31	5. 1. 0	6. 46	10. 0. 33	3. 35	16. 33	20. 8	23. 8	
♀	VENUS.							
1	9. 16. 47	1. 47 S	9. 13. 7	0. 46 S	23. 34 S	18. 57	0. 12	
7	9. 26. 16	2. 14	9. 20. 40	0. 57	22. 49	19. 30	0. 18	
13	10. 5. 45	2. 37	9. 28. 12	1. 7	21. 38	20. 2	0. 24	
19	10. 15. 14	2. 57	10. 5. 45	1. 16	20. 5	20. 34	0. 30	
25	10. 24. 44	3. 11	10. 13. 17	1. 22	18. 10	21. 5	0. 36	
♂	MARS.							
	□ 13 ^d . 21 ^h .							
1	1. 27. 10	0. 17 N	0. 16. 23	0. 25 N	6. 50 N	1. 0	6. 14	
7	2. 0. 24	0. 23	0. 19. 40	0. 32	8. 12	1. 12	6. 0	
13	2. 3. 36	0. 29	0. 23. 2	0. 39	9. 34	1. 24	5. 46	
19	2. 6. 46	0. 35	0. 26. 28	0. 45	10. 55	1. 37	5. 33	
25	2. 9. 53	0. 41	0. 29. 57	0. 50	12. 14	1. 50	5. 21	
♃	JUPITER.							
	♂ 20 ^d . 0 ^h .							
1	9. 28. 8	0. 26 S	9. 25. 18	0. 22 S	21. 27 S	19. 49	1. 4	
7	9. 28. 39	0. 27	9. 26. 42	0. 23	21. 12	19. 55	0. 43	
13	9. 29. 10	0. 28	9. 28. 7	0. 23	20. 56	20. 1	0. 23	
19	9. 29. 41	0. 28	9. 29. 32	0. 24	20. 39	20. 7	0. 4	
25	10. 0. 12	0. 29	10. 0. 57	0. 24	20. 22	20. 13	23. 41	
♄	SATURN.							
1	4. 26. 43	1. 25 N	5. 1. 28	1. 31 N	12. 23 N	10. 16	15. 28	
7	4. 26. 56	1. 25	5. 1. 14	1. 33	12. 29	10. 15	15. 1	
13	4. 27. 9	1. 26	5. 0. 56	1. 34	12. 37	10. 14	14. 34	
19	4. 27. 22	1. 26	5. 0. 35	1. 35	12. 45	10. 13	14. 7	
25	4. 27. 34	1. 27	5. 0. 11	1. 36	12. 55	10. 11	13. 40	
♅	GEORGIAN.							
	♂ 30 ^d . 12 ^h .							
1	10. 10. 9	0. 39 S	10. 8. 48	0. 37 S	18. 40 S	20. 46	2. 0	
11	10. 10. 15	0. 39	10. 9. 21	0. 37	18. 32	20. 48	1. 19	
21	10. 10. 22	0. 39	10. 9. 55	0. 37	18. 23	20. 50	0. 38	

Days of the Week.	Days of the Month.	THE MOON'S			
		Longitude.		Latitude.	
		Noon.	Midnight.	Noon.	Midnight.
		S. D. M. S.	S. D. M. S.	D. M. S.	D. M. S.
Sa.	1	4. 18. 36. 31	4. 25. 18. 23	1. 11. 48 S	0. 36. 22 S
Sun.	2	5. 1. 53. 38	5. 8. 22. 33	0. 1. 0 S	0. 33. 52 N
M.	3	5. 14. 45. 30	5. 21. 2. 56	1. 7. 50 N	1. 40. 30
Tu.	4	5. 27. 15. 26	6. 3. 23. 34	2. 11. 32	2. 40. 42
W.	5	6. 9. 27. 58	6. 15. 29. 16	3. 7. 44	3. 32. 27
Th.	6	6. 21. 28. 9	6. 27. 25. 13	3. 54. 40	4. 14. 13
F.	7	7. 3. 21. 9	7. 9. 16. 32	4. 30. 58	4. 44. 47
Sa.	8	7. 15. 11. 56	7. 21. 7. 53	4. 55. 32	5. 3. 9
Sun.	9	7. 27. 4. 54	8. 3. 3. 25	5. 7. 30	5. 8. 32
M.	10	8. 9. 3. 51	8. 15. 6. 30	5. 6. 10	5. 0. 22
Tu.	11	8. 21. 11. 40	8. 27. 19. 37	4. 51. 8	4. 38. 30
W.	12	9. 3. 30. 28	9. 9. 44. 20	4. 22. 29	4. 3. 12
Th.	13	9. 16. 1. 19	9. 22. 21. 25	3. 40. 49	3. 15. 29
F.	14	9. 28. 44. 38	10. 5. 10. 56	2. 47. 28	2. 17. 4
Sa.	15	10. 11. 40. 16	10. 18. 12. 35	1. 44. 36	1. 10. 29 N
Sun.	16	10. 24. 47. 49	11. 1. 25. 55	0. 35. 7 N	0. 1. 1 S
M.	17	11. 8. 6. 52	11. 14. 50. 38	0. 37. 25 S	1. 13. 36
Tu.	18	11. 21. 37. 13	11. 28. 26. 36	1. 49. 0	2. 23. 7
W.	19	0. 5. 18. 46	0. 12. 13. 44	2. 55. 25	3. 25. 23
Th.	20	0. 19. 11. 27	0. 26. 11. 51	3. 52. 31	4. 16. 21
F.	21	1. 3. 14. 51	1. 10. 20. 16	4. 36. 27	4. 52. 27
Sa.	22	1. 17. 27. 53	1. 24. 37. 23	5. 4. 3	5. 10. 58
Sun.	23	2. 1. 48. 24	2. 9. 0. 29	5. 13. 2	5. 10. 12
M.	24	2. 16. 13. 5	2. 23. 25. 34	5. 2. 27	4. 49. 56
Tu.	25	3. 0. 37. 18	3. 7. 47. 38	4. 32. 51	4. 11. 31
W.	26	3. 14. 55. 51	3. 22. 1. 18	3. 46. 20	3. 17. 49
Th.	27	3. 29. 3. 21	4. 6. 1. 26	2. 46. 28	2. 12. 53
F.	28	4. 12. 55. 6	4. 19. 43. 58	1. 37. 41	1. 1. 27 S
Sa.	29	4. 26. 27. 45	5. 3. 6. 18	0. 24. 46 S	0. 11. 48 N
Sun.	30	5. 9. 39. 35	5. 16. 7. 37	0. 47. 46 N	1. 22. 38
M.	31	5. 22. 30. 37	5. 28. 48. 48	1. 56. 3	2. 27. 38

Days of the Month.	THE MOON'S					
	Age.	Pass. Merid.	Right Ascension.		Declination.	
			Noon.	Midnight.	Noon.	Midnight.
			D. M. S.	D. M. S.	D. M. S.	D. M. S.
1	19	15. 8	140. 39. 45	147. 22. 27	14. 7. 23 N	12. 31. 32 N
2	20	15. 56	153. 53. 32	160. 13. 49	10. 47. 40	8. 57. 35
3	21	16. 42	166. 24. 23	172. 26. 27	7. 3. 1	5. 5. 26
4	22	17. 25	178. 21. 24	184. 10. 39	3. 6. 10 N	1. 6. 27 N
5	23	18. 8	189. 55. 37	195. 37. 45	0. 52. 37 S	2. 50. 3 S
6	24	18. 50	201. 18. 25	206. 58. 57	4. 44. 57	6. 36. 24
7	25	19. 33	212. 40. 38	218. 24. 37	8. 23. 34	10. 5. 35
8	26	20. 17	224. 11. 56	230. 3. 31	11. 41. 34	13. 10. 37
9	27	21. 3	236. 0. 9	242. 2. 23	14. 31. 51	15. 44. 17
10	28	21. 50	248. 10. 37	254. 24. 56	16. 46. 59	17. 39. 2
11	29	22. 39	260. 45. 13	267. 11. 8	18. 19. 29	18. 47. 30
12	30	23. 29	273. 42. 1	280. 17. 1	19. 2. 22	19. 3. 30
13	1	♂	286. 55. 11	293. 35. 25	18. 50. 31	18. 23. 15
14	2	0. 20	300. 16. 37	306. 57. 46	17. 41. 44	16. 46. 16
15	3	1. 11	313. 38. 1	320. 16. 41	15. 37. 26	14. 16. 0
16	4	2. 1	326. 53. 20	333. 27. 52	12. 42. 56	10. 59. 25
17	5	2. 51	340. 0. 25	346. 31. 23	9. 6. 44	7. 6. 20
18	6	3. 40	353. 1. 25	359. 31. 20	4. 59. 42	2. 48. 28 S
19	7	4. 30	6. 2. 7	12. 34. 53	0. 34. 18 S	1. 41. 5 N
20	8	5. 20	19. 10. 47	25. 50. 58	3. 55. 53 N	6. 8. 15
21	9	6. 12	32. 36. 31	39. 28. 22	8. 16. 17	10. 18. 1
22	10	7. 5	46. 27. 14	53. 33. 30	12. 11. 28	13. 54. 37
23	11	8. 1	60. 47. 10	68. 7. 47	15. 25. 34	16. 42. 30
24	12	8. 59	75. 34. 24	83. 5. 32	17. 43. 49	18. 28. 10
25	13	9. 57	90. 39. 19	98. 13. 34	18. 54. 38	19. 2. 42
26	14	10. 55	105. 45. 56	113. 14. 7	18. 52. 22	18. 24. 8
27	15	11. 52	120. 36. 2	127. 49. 57	17. 38. 56	16. 38. 7
28	16	12. 45	134. 54. 35	141. 49. 8	15. 23. 17	13. 56. 17
29	17	13. 36	148. 33. 19	155. 7. 13	12. 19. 2	10. 33. 28
30	18	14. 24	161. 31. 19	167. 46. 23	8. 41. 28	6. 44. 47
31	19	15. 9	173. 53. 24	179. 53. 29	4. 45. 3	2. 43. 45 N

Days of the Week.	Days of the Month.	THE MOON's				Proportional Logarithm.	
		Semidiameter.		Hor. Parallax.			
		Noon.	Midnight.	Noon.	Midnight.		
		M. S.	M. S.	M. S.	M. S.	Noon.	Midn.
Sa.	1	15. 46	15. 38	57. 50	57. 24	4931	4964
Sun.	2	15. 31	15. 24	56. 58	56. 33	4997	5028
M.	3	15. 18	15. 12	56. 9	55. 46	5059	5089
Tu.	4	15. 6	15. 1	55. 25	55. 6	5116	5141
W.	5	14. 57	14. 53	54. 50	54. 36	5162	5181
Th.	6	14. 50	14. 48	54. 25	54. 17	5195	5206
F.	7	14. 46	14. 45	54. 11	54. 8	5214	5218
Sa.	8	14. 45	14. 45	54. 7	54. 8	5219	5218
Sun.	9	14. 46	14. 48	54. 12	54. 18	5213	5205
M.	10	14. 50	14. 53	54. 26	54. 36	5194	5181
Tu.	11	14. 56	14. 59	54. 47	54. 59	5166	5150
W.	12	15. 3	15. 6	55. 12	55. 26	5133	5115
Th.	13	15. 10	15. 14	55. 40	55. 55	5097	5077
F.	14	15. 18	15. 22	56. 10	56. 25	5058	5039
Sa.	15	15. 26	15. 30	56. 40	56. 55	5019	5000
Sun.	16	15. 34	15. 38	57. 9	57. 23	4983	4965
M.	17	15. 42	15. 45	57. 36	57. 49	4949	4932
Tu.	18	15. 49	15. 52	58. 2	58. 14	4916	4901
W.	19	15. 55	15. 58	58. 26	58. 37	4886	4873
Th.	20	16. 1	16. 4	58. 48	58. 58	4859	4847
F.	21	16. 7	16. 9	59. 7	59. 15	4836	4826
Sa.	22	16. 11	16. 12	59. 22	59. 28	4817	4810
Sun.	23	16. 13	16. 14	59. 32	59. 34	4805	4803
M.	24	16. 14	16. 13	59. 34	59. 32	4803	4805
Tu.	25	16. 12	16. 10	59. 27	59. 20	4811	4820
W.	26	16. 8	16. 4	59. 11	58. 59	4831	4845
Th.	27	16. 0	15. 56	58. 44	58. 27	4864	4885
F.	28	15. 51	15. 46	58. 9	57. 50	4907	4931
Sa.	29	15. 40	15. 34	57. 29	57. 7	4957	4985
Sun.	30	15. 28	15. 22	56. 46	56. 24	5012	5040
M.	31	15. 16	15. 11	56. 3	55. 44	5067	5092

DISTANCES of the Moon's *Centre* from the SUN, and from STARS *EAST* of her.[illegible]

Stars' Names.	Days	Noon.		III ^h .		VI ^h .		IX ^h .		Midnight.		XV ^h .		XVIII ^h .		XXI ^h .	
		D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.
Aldebaran.	19	61.	58. 40	60.	15. 2	58.	31. 16	56.	47. 20	55.	3. 16	53.	19. 3	51.	34. 41	49.	50. 11
	20	48.	5. 32	46.	20. 44	44.	35. 49	42.	50. 44	41.	5. 32	39.	20. 11	37.	34. 42	35.	49. 5
	21	34.	3. 20	32.	17. 28	30.	31. 28	28.	45. 20	26.	59. 6	-	-	-	-	-	-
Pollux.	21	-	-	-	-	-	-	-	-	71.	21. 24	69.	36. 52	67.	52. 16	66.	7. 36
	22	64.	22. 52	62.	38. 5	60.	53. 18	59.	8. 29	57.	23. 39	55.	38. 48	53.	54. 0	52.	9. 15
	23	50.	24. 32	48.	39. 52	46.	55. 20	45.	10. 57	43.	26. 42	41.	42. 39	39.	58. 50	38.	15. 16
	24	36.	31. 59	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Regulus.	24	71.	23. 2	69.	35. 17	67.	47. 31	65.	59. 46	64.	12. 2	62.	24. 19	60.	36. 39	58.	49. 2
	25	57.	1. 28	55.	13. 57	53.	26. 31	51.	39. 10	49.	51. 55	48.	4. 46	46.	17. 44	44.	30. 50
	26	42.	44. 4	40.	57. 26	39.	10. 59	37.	24. 41	35.	38. 34	33.	52. 38	32.	6. 55	30.	21. 24
	27	28.	36. 6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Spica ♀.	27	82.	20. 28	80.	35. 57	78.	51. 41	77.	7. 39	75.	23. 53	73.	40. 22	71.	57. 8	70.	14. 12
	28	68.	31. 32	66.	49. 10	65.	7. 7	63.	25. 24	61.	43. 59	60.	2. 54	58.	22. 10	56.	41. 47
	29	55.	1. 44	53.	22. 2	51.	42. 43	50.	3. 46	48.	25. 11	46.	46. 59	45.	9. 10	43.	31. 45
	30	41.	54. 44	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Antares.	30	87.	48. 33	86.	12. 5	84.	35. 58	83.	0. 10	81.	24. 43	79.	49. 36	78.	14. 48	76.	40. 21
	31	75.	6. 15	73.	32. 28	71.	59. 2	70.	25. 55	68.	53. 8	67.	20. 40	65.	48. 32	64.	16. 44
	F.1	62.	45. 15	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Stars' Names.	Days	Noon.		III ^h .		VI ^h .		IX ^h .		Midnight.		XV ^h .		XVIII ^h .		XXI ^h .	
		D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.
α Pegasi.	20	-	-	-	-	-	-	-	-	41. 50. 22	43. 19. 38	44. 49. 53	46. 21. 4				
	21	47. 53. 8	49. 26. 0	50. 59. 39	52. 33. 59	54. 8. 58	55. 44. 29	57. 20. 32	58. 57. 5								
	22	60. 34. 6	62. 11. 30	63. 49. 17	65. 27. 26	67. 5. 55	68. 44. 41	70. 23. 43	72. 2. 59								
	23	73. 42. 31	75. 22. 14	77. 2. 7	78. 42. 9	80. 22. 20	82. 2. 37	83. 43. 0	85. 23. 28								
	24	87. 3. 57	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
α Arietis.	24	43. 26. 4	45. 6. 34	46. 47. 27	48. 28. 41	50. 10. 15	51. 52. 6	53. 34. 11	55. 16. 29								
	25	56. 58. 58	58. 41. 34	60. 24. 17	62. 7. 6	63. 49. 58	65. 32. 51	67. 15. 44	68. 58. 36								
	26	70. 41. 26	72. 24. 13	74. 6. 55	75. 49. 32	77. 32. 1	-	-	-	-	-	-	-	-	-	-	
	26	-	-	-	-	-	-	-	-	44. 30. 23	46. 16. 21	48. 2. 6	49. 47. 40				
Aldebaran.	27	51. 33. 0	53. 18. 7	55. 2. 59	56. 47. 37	58. 32. 1	60. 16. 9	62. 0. 1	63. 43. 37								
	28	65. 26. 56	67. 9. 58	68. 52. 43	70. 35. 9	72. 17. 18	73. 59. 8	75. 40. 39	77. 21. 50								
	29	79. 2. 42	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	29	36. 11. 52	37. 48. 9	39. 24. 23	41. 0. 33	42. 36. 38	44. 12. 37	45. 48. 27	47. 24. 7								
	30	48. 59. 39	50. 34. 57	52. 10. 2	53. 44. 54	55. 19. 33	56. 53. 57	58. 28. 7	60. 2. 2								
Pollux.	31	61. 35. 42	63. 9. 6	64. 42. 16	66. 15. 10	67. 47. 48	69. 20. 11	70. 52. 19	72. 24. 11								
	F.1	73. 55. 48	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

THE SATELLITES OF JUPITER
are not visible this Month,
JUPITER being too near the SUN.

I. FEBRUARY 1831. 13

Days of the Week.	Days of the Month.		Phases of the MOON.
		<i>Sundays, and other remarkable Days.</i>	<div style="text-align: right;">D. H. M.</div> ☾ Last Quarter . . . 4. 8. 13 ● New Moon 12. 4. 59 ☽ First Quarter . . . 19. 2. 59 ○ Full Moon 26. 4. 50
Tu.	1		Other Phenomena.
W.	2	<i>Purif. of B. V. Mary.</i>	D. H. M.
Th.	3	Blas. On mor. of Purif.	1. 5. - ☽ 1 γ ♀.
F.	4	[3 ret.]	4. 23. - ☽ γ ☾.
Sa.	5	Agatha.	5. 10. - ☽ ψ ☾.
Sun.	6	<i>Sexagesima Sunday.</i>	6. 3. - ☽ φ Oph.
M.	7		7. - . - ☽ Stationary.
Tu.	8		9. 8. - ☽ δ ♀.
W.	9	In 8 days of Purif. 4 ret.	10. 7. - ☽ φ
Th.	10		12. - . - ☾ eclipsed, invisible.
F.	11		13. 6. - ☽ φ.
Sa.	12	Hilary Term ends.	13. 9. - ☽ λ ☾.
Sun.	13	<i>Quinquagesima Sunday.</i>	13. 19. - ☽ φ ☾.
M.	14	Valentine.	14. 11. - ♀ λ ☾.
Tu.	15	<i>Shrove Tuesday.</i>	16. 13. - ☽ ν ✕.
W.	16	<i>Ash Wednesday.</i>	16. 17. - ☽ 9 ♄.
Th.	17	Camb. Term div. m.	17. 9. - ☽ 2 ξ Ceti.
F.	18		17. 16. - ☽ μ Ceti.
Sa.	19		18. 12. - ☽ f ♄.
Sun.	20	<i>1st Sunday in Lent.</i>	18. 20. 13 ☾ enters ♏.
M.	21		19. 3. - ♀ φ ☾.
Tu.	22		19. 8. - ☽ γ ♄.
W.	23		19. 10. - ☽ 2 δ ♄.
Th.	24	<i>St. Matthias. D. of Camb.</i>	19. 15. - ☽ α ♄.
F.	25	[b.]	23. 0. - ☽ η ♄.
Sa.	26		24. 14. - ☽ δ ♄.
Sun.	27	<i>2d Sunday in Lent.</i>	25. 11. - ☽ α ♄.
M.	28		25. 23. - ☽ ε ♄.
			26. 2. - ☽ ζ ♄.
			26. - . - ☽ ecl. partly visible.
			26. 11. - ☽ η.
			26. 22. - ☽ σ ♄.
			28. 14. - ☽ 1 γ ♀.

Days of the Week.	Days of the Month.	THE SUN'S			Diff.	Equation of Time. <i>Add to app. Time.</i>	Diff.
		Longitude.	Rt. Ascen. <i>in Time.</i>	Declin. <i>South.</i>			
		S. D. M. S.	H. M. S.	D. M. S.	M. S.	M. S.	S.
Tu.	1	10. 11. 57. 19	20. 57. 41, 1	17. 13. 14		13. 52, 7	
W.	2	10. 12. 58. 10	21. 1. 45, 4	16. 56. 8	17. 6	14. 0, 4	7, 7
Th.	3	10. 13. 58. 59	21. 5. 48, 9	16. 38. 44	17. 24	14. 7, 4	7, 0
F.	4	10. 14. 59. 48	21. 9. 51, 7	16. 21. 2	17. 42	14. 13, 5	6, 1
Sa.	5	10. 16. 0. 36	21. 13. 53, 6	16. 3. 3	17. 59	14. 18, 8	5, 3
					18. 15		4, 6
Sun.	6	10. 17. 1. 23	21. 17. 54, 7	15. 44. 48		14. 23, 4	
M.	7	10. 18. 2. 9	21. 21. 55, 0	15. 26. 17	18. 31	14. 27, 2	3, 8
Tu.	8	10. 19. 2. 53	21. 25. 54, 6	15. 7. 29	18. 48	14. 30, 2	3, 0
W.	9	10. 20. 3. 37	21. 29. 53, 3	14. 48. 27	19. 2	14. 32, 4	2, 2
Th.	10	10. 21. 4. 20	21. 33. 51, 3	14. 29. 9	19. 18	14. 33, 8	1, 4
					19. 32		0, 6
F.	11	10. 22. 5. 1	21. 37. 48, 5	14. 9. 37		14. 34, 4	
Sa.	12	10. 23. 5. 40	21. 41. 44, 9	13. 49. 51	19. 46	14. 34, 3	0, 1
Sun.	13	10. 24. 6. 19	21. 45. 40, 6	13. 29. 51	20. 0	14. 33, 4	0, 9
M.	14	10. 25. 6. 55	21. 49. 35, 5	13. 9. 38	20. 13	14. 31, 7	1, 7
Tu.	15	10. 26. 7. 30	21. 53. 29, 6	12. 49. 13	20. 25	14. 29, 3	2, 4
					20. 38		3, 1
W.	16	10. 27. 8. 4	21. 57. 23, 0	12. 28. 35		14. 26, 2	
Th.	17	10. 28. 8. 35	22. 1. 15, 7	12. 7. 45	20. 50	14. 22, 3	3, 9
F.	18	10. 29. 9. 5	22. 5. 7, 6	11. 46. 44	21. 1	14. 17, 7	4, 6
Sa.	19	11. 0. 9. 33	22. 8. 58, 8	11. 25. 31	21. 13	14. 12, 3	5, 4
Sun.	20	11. 1. 9. 58	22. 12. 49, 3	11. 4. 9	21. 22	14. 6, 3	6, 0
					21. 33		6, 8
M.	21	11. 2. 10. 21	22. 16. 39, 0	10. 42. 36		13. 59, 5	
Tu.	22	11. 3. 10. 42	22. 20. 28, 2	10. 20. 53	21. 43	13. 52, 1	7, 4
W.	23	11. 4. 11. 2	22. 24. 16, 6	9. 59. 1	21. 52	13. 44, 1	8, 0
Th.	24	11. 5. 11. 20	22. 28. 4, 5	9. 37. 0	22. 1	13. 35, 4	8, 7
F.	25	11. 6. 11. 35	22. 31. 51, 7	9. 14. 50	22. 10	13. 26, 1	9, 3
					22. 18		9, 9
Sa.	26	11. 7. 11. 49	22. 35. 38, 3	8. 52. 32		13. 16, 2	
Sun.	27	11. 8. 12. 1	22. 39. 24, 4	8. 30. 6	22. 26	13. 5, 7	10, 5
M.	28	11. 9. 12. 11	22. 43. 9, 9	8. 7. 33	22. 33	12. 54, 7	11, 0
					22. 40		11, 6

III. FEBRUARY 1831. 15

Days	Time of ☉'s Semidiam. passing Merid.	THE SUN'S			Place of the ☽'s Node.
	M. S.	Semi- diameter.	Hourly Motion.	Logar. Distance.	S. D. M.
1	1. 8, 2	16. 15, 3	2. 32, 2	9. 993721	5. 2. 2
7	1. 7, 4	16. 14, 4	2. 31, 8	9. 994176	5. 1. 43
13	1. 6, 7	16. 13, 2	2. 31, 5	9. 994684	5. 1. 23
19	1. 6, 1	16. 12, 0	2. 31, 1	9. 995225	5. 1. 4
25	1. 5, 5	16. 10, 6	2. 30, 7	9. 995817	5. 0. 45

ECLIPSES OF THE SATELLITES OF JUPITER. MEAN TIME.

I. Satellite.		II. Satellite.		III. Satellite.	
<i>Immersion.</i>		<i>Immersion.</i>			
Days.	H. M. S.	Days.	H. M. S.	Days.	H. M. S.
16	9. 44. 41	16	10. 1. 28	18	5. 39. 50 Im.
18	4. 13. 8	19	23. 19. 30	● 18	9. 10. 4 E.
19	22. 41. 36	23	12. 38. 39	25	9. 39. 12 Im.
21	17. 10. 2	27	1. 56. 42	● 25	13. 9. 46 E.
23	11. 38. 30				
25	6. 6. 56				
27	0. 35. 23				
28	19. 3. 48				
				IV. Satellite.	
				23	18. 38. 26 Im.
				23	22. 57. 42 E.

Days	THE PLANETS'						
	Heliocentric		Geocentric		Declin.	Rt. Asc. in Time.	Passage Merid.
	Long.	Lat.	Long.	Lat.			
	S. D. M.	D. M.	S. D. M.	D. M.	D. M.	H. M.	H. M.
♂ MERCURY. Gr. Elong. 20 ^d .							
1	5. 5. 45	6. 36 N	9. 29. 39	3. 30 N	16. 49 S	20. 4	23. 0
4	5. 19. 9	5. 53	9. 27. 44	3. 7	17. 34	19. 57	22. 42
7	6. 1. 20	4. 58	9. 27. 4	2. 36	18. 13	19. 54	22. 29
10	6. 12. 29	3. 55	9. 27. 30	2. 0	18. 43	19. 57	22. 21
13	6. 22. 48	2. 48	9. 28. 51	1. 24	19. 2	20. 3	22. 16
16	7. 2. 27	1. 41	10. 0. 55	0. 49	19. 10	20. 12	22. 14
19	7. 11. 34	0. 35 N	10. 3. 32	0. 17 N	19. 7	20. 23	22. 15
22	7. 20. 19	0. 29 S	10. 6. 35	0. 14 S	18. 52	20. 36	22. 17
25	7. 28. 48	1. 31	10. 9. 59	0. 41	18. 25	20. 51	22. 20
28	8. 7. 6	2. 30	10. 13. 41	1. 5	17. 46	21. 6	22. 24
♀ VENUS.							
1	11. 5. 50	3. 21 S	10. 22. 4	1. 27 S	15. 33 S	21. 40	0. 42
7	11. 15. 21	3. 24	10. 29. 34	1. 29	13. 1	22. 9	0. 47
13	11. 24. 53	3. 21	11. 7. 5	1. 28	10. 17	22. 37	0. 52
19	0. 4. 25	3. 12	11. 14. 34	1. 25	7. 23	23. 5	0. 57
25	0. 13. 59	2. 58	11. 22. 3	1. 20	4. 22	23. 33	1. 1
♂ MARS.							
1	2. 13. 30	0. 47 N	1. 4. 4	0. 55 N	13. 45 N	2. 6	5. 8
7	2. 16. 34	0. 53	1. 7. 38	0. 59	15. 0	2. 20	4. 58
13	2. 19. 36	0. 58	1. 11. 15	1. 2	16. 12	2. 34	4. 48
19	2. 22. 36	1. 3	1. 14. 53	1. 5	17. 21	2. 48	4. 39
25	2. 25. 35	1. 7	1. 18. 33	1. 8	18. 27	3. 3	4. 31
♃ JUPITER.							
1	10. 0. 48	0. 30 S	10. 2. 36	0. 25 S	20. 0 S	20. 20	23. 19
7	10. 1. 19	0. 30	10. 4. 0	0. 26	19. 41	20. 26	23. 1
13	10. 1. 50	0. 31	10. 5. 24	0. 26	19. 22	20. 31	22. 43
19	10. 2. 21	0. 32	10. 6. 46	0. 27	19. 2	20. 37	22. 25
25	10. 2. 52	0. 32	10. 8. 7	0. 28	18. 42	20. 43	22. 8
♄ SATURN. 8 17 ^d . 6 ^h .							
1	4. 27. 49	1. 27 N	4. 29. 41	1. 37 N	13. 6 N	10. 10	13. 9
7	4. 28. 2	1. 28	4. 29. 13	1. 38	13. 17	10. 8	12. 44
13	4. 28. 15	1. 28	4. 28. 45	1. 39	13. 28	10. 6	12. 18
19	4. 28. 28	1. 29	4. 28. 16	1. 39	13. 38	10. 4	11. 53
25	4. 28. 41	1. 29	4. 27. 47	1. 40	13. 49	10. 2	11. 28
♅ GEORGIAN.							
1	10. 10. 29	0. 39 S	10. 10. 33	0. 37 S	18. 12 S	20. 53	23. 51
11	10. 10. 36	0. 39	10. 11. 8	0. 37	18. 3	20. 55	23. 14
21	10. 10. 42	0. 39	10. 11. 42	0. 37	17. 53	20. 57	22. 37

Days of the Week.	Days of the Month.	THE MOON'S							
		Longitude.				Latitude.			
		Noon.		Midnight.		Noon.		Midnight.	
		S. D. M. S.	S. D. M. S.	S. D. M. S.	S. D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.
Tu.	1	6. 5. 2. 30	6. 11. 12. 7	2. 57. 4N	3. 24. 7N				
W.	2	6. 17. 18. 9	6. 23. 21. 4	3. 48. 35	4. 10. 18				
Th.	3	6. 29. 21. 26	7. 5. 19. 50	4. 29. 5	4. 44. 51				
F.	4	7. 11. 16. 51	7. 17. 13. 5	4. 57. 29	5. 6. 55				
Sa.	5	7. 23. 9. 8	7. 29. 5. 36	5. 13. 3	5. 15. 52				
Sun.	6	8. 5. 3. 5	8. 11. 2. 7	5. 15. 17	5. 11. 18				
M.	7	8. 17. 3. 15	8. 23. 6. 58	5. 3. 52	4. 53. 1				
Tu.	8	8. 29. 13. 43	9. 5. 23. 55	4. 38. 44	4. 21. 7				
W.	9	9. 11. 37. 53	9. 17. 55. 54	4. 0. 13	3. 36. 12				
Th.	10	9. 24. 18. 11	10. 0. 44. 51	3. 9. 13	2. 39. 32				
F.	11	10. 7. 15. 56	10. 13. 51. 25	2. 7. 25	1. 33. 14				
Sa.	12	10. 20. 31. 13	10. 27. 15. 9	0. 57. 23N	0. 20. 22N				
Sun.	13	11. 4. 2. 59	11. 10. 54. 26	0. 17. 19S	0. 55. 5S				
M.	14	11. 17. 49. 10	11. 24. 46. 48	1. 32. 21	2. 8. 31				
Tu.	15	0. 1. 46. 59	0. 8. 49. 17	2. 42. 58	3. 15. 6				
W.	16	0. 15. 53. 16	0. 22. 58. 33	3. 44. 24	4. 10. 21				
Th.	17	1. 0. 4. 44	1. 7. 11. 27	4. 32. 30	4. 50. 30				
F.	18	1. 14. 18. 21	1. 21. 25. 6	5. 4. 2	5. 12. 53				
Sa.	19	1. 28. 31. 24	2. 5. 36. 56	5. 16. 57	5. 16. 11				
Sun.	20	2. 12. 41. 27	2. 19. 44. 41	5. 10. 37	5. 0. 23				
M.	21	2. 26. 46. 22	3. 3. 46. 15	4. 45. 41	4. 26. 47				
Tu.	22	3. 10. 44. 6	3. 17. 39. 41	4. 4. 1	3. 37. 48				
W.	23	3. 24. 32. 44	4. 1. 23. 3	3. 8. 34	2. 36. 49				
Th.	24	4. 8. 10. 25	4. 14. 54. 37	2. 3. 4	1. 27. 52				
F.	25	4. 21. 35. 28	4. 28. 12. 50	0. 51. 45S	0. 15. 14S				
Sa.	26	5. 4. 46. 34	5. 11. 16. 35	0. 21. 9N	0. 56. 54N				
Sun.	27	5. 17. 42. 51	5. 24. 5. 20	1. 31. 34	2. 4. 44				
M.	28	6. 0. 24. 7	6. 6. 39. 16	2. 36. 1	3. 5. 7				

Days of the Month.	THE MOON'S					
	Age.	Pass. Merid.	Right Ascension.		Declination.	
			Noon.	Midnight.	Noon.	Midnight.
			D. M. S.	D. M. S.	D. M. S.	D. M. S.
1	20	15. 54	185. 47. 51	191. 37. 44	0. 42. 15 N	1. 18. 16 S
2	21	16. 37	197. 24. 28	203. 9. 18	3. 16. 42 S	5. 12. 2
3	22	17. 20	208. 53. 27	214. 38. 9	7. 3. 22	8. 49. 49
4	23	18. 4	220. 24. 30	226. 13. 33	10. 30. 31	12. 4. 39
5	24	18. 49	232. 6. 13	238. 3. 19	13. 31. 23	14. 49. 51
6	25	19. 36	244. 5. 30	250. 13. 14	15. 59. 14	16. 58. 39
7	26	20. 24	256. 26. 46	262. 46. 11	17. 47. 15	18. 24. 12
8	27	21. 14	269. 11. 16	275. 41. 39	18. 48. 42	19. 0. 3
9	28	22. 5	282. 16. 42	288. 55. 38	18. 57. 40	18. 41. 6
10	29	22. 56	295. 37. 35	302. 21. 33	18. 10. 5	17. 24. 38
11	30	23. 48	309. 6. 36	315. 51. 51	16. 24. 59	15. 11. 37
12	1	♂	322. 36. 38	329. 20. 26	13. 45. 17	12. 7. 2
13	2	0. 40	336. 2. 57	342. 44. 9	10. 18. 5	8. 19. 53
14	3	1. 31	349. 24. 15	356. 3. 40	6. 14. 6	4. 2. 30 S
15	4	2. 22	2. 43. 0	9. 23. 0	1. 46. 55 S	0. 30. 40 N
16	5	3. 14	16. 4. 29	22. 48. 20	2. 48. 13 N	5. 3. 44
17	6	4. 6	29. 35. 25	36. 26. 32	7. 15. 12	9. 20. 37
18	7	4. 59	43. 22. 17	50. 23. 6	11. 18. 3	13. 5. 36
19	8	5. 54	57. 29. 9	64. 40. 13	14. 41. 31	16. 4. 10
20	9	6. 51	71. 55. 46	79. 14. 53	17. 12. 8	18. 4. 15
21	10	7. 48	86. 36. 19	93. 58. 32	18. 39. 36	18. 57. 39
22	11	8. 45	101. 19. 50	108. 38. 29	18. 58. 14	18. 41. 34
23	12	9. 41	115. 52. 46	123. 1. 12	18. 8. 13	17. 19. 5
24	13	10. 34	130. 2. 37	136. 56. 6	16. 15. 22	14. 58. 31
25	14	11. 26	143. 41. 9	150. 17. 36	13. 30. 9	11. 51. 59
26	15	12. 15	156. 45. 36	163. 5. 33	10. 5. 45	8. 13. 9
27	16	13. 2	169. 18. 6	175. 24. 2	6. 15. 52	4. 15. 29
28	17	13. 47	181. 24. 16	187. 19. 46	2. 13. 31 N	0. 11. 22 N

VII. FEBRUARY 1831. 19

Days of the Week.	Days of the Month.	THE MOON'S				Proportional Logarithm.	
		Semidiameter.		Hor. Parallax.			
		Noon.	Midnight.	Noon.	Midnight.	Noon.	Midn.
		M. S.	M. S.	M. S.	M. S.		
Tu.	1	15. 6	15. 1	55. 25	55. 8	5116	5139
W.	2	14. 57	14. 54	54. 53	54. 40	5158	5175
Th.	3	14. 51	14. 49	54. 29	54. 21	5190	5201
F.	4	14. 47	14. 46	54. 16	54. 13	5207	5211
Sa.	5	14. 46	14. 47	54. 13	54. 15	5211	5209
Sun.	6	14. 48	14. 50	54. 20	54. 28	5202	5191
M.	7	14. 53	14. 57	54. 38	54. 50	5178	5162
Tu.	8	15. 0	15. 4	55. 3	55. 18	5145	5125
W.	9	15. 9	15. 14	55. 36	55. 54	5102	5079
Th.	10	15. 19	15. 24	56. 13	56. 32	5054	5030
F.	11	15. 29	15. 35	56. 51	57. 10	5005	4981
Sa.	12	15. 40	15. 44	57. 28	57. 46	4959	4936
Sun.	13	15. 49	15. 53	58. 2	58. 17	4916	4897
M.	14	15. 56	15. 59	58. 30	58. 41	4881	4868
Tu.	15	16. 2	16. 4	58. 50	58. 58	4856	4847
W.	16	16. 6	16. 7	59. 4	59. 8	4839	4834
Th.	17	16. 8	16. 8	59. 11	59. 13	4831	4828
F.	18	16. 8	16. 8	59. 13	59. 12	4828	4830
Sa.	19	16. 7	16. 6	59. 10	59. 6	4832	4837
Sun.	20	16. 5	16. 4	59. 2	58. 57	4842	4848
M.	21	16. 2	16. 0	58. 51	58. 43	4855	4865
Tu.	22	15. 58	15. 55	58. 35	58. 25	4875	4887
W.	23	15. 52	15. 49	58. 14	58. 2	4901	4916
Th.	24	15. 45	15. 41	57. 49	57. 35	4932	4950
F.	25	15. 37	15. 33	57. 20	57. 4	4969	4989
Sa.	26	15. 29	15. 24	56. 48	56. 31	5009	5031
Sun.	27	15. 19	15. 15	56. 14	55. 58	5053	5073
M.	28	15. 11	15. 6	55. 42	55. 26	5094	5115

Stars' Names.	Days	Noon.		III ^h .		VI ^h .		IX ^h .		Midnight.		XV ^h .		XVIII ^h .		XXI ^h .	
		D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.
Pollux.	18	67. 28. 59		65. 44. 36	64. 0. 18	62. 16. 5	60. 31. 58	58. 47. 57	57. 4. 5	55. 20. 21							
	19	53. 36. 45		51. 53. 18	50. 10. 3	48. 27. 1	46. 44. 10	45. 1. 32	43. 19. 10	41. 37. 6							
	20	39. 55. 22		38. 13. 59	36. 33. 0	34. 52. 27		33. 12. 21	- - -	- - -	- - -						
Regulus.	20	- - -		- - -	- - -	- - -	67. 52. 25	66. 7. 12	64. 22. 4	62. 37. 1							
	21	60. 52. 3		59. 7. 11	57. 22. 24	55. 37. 44	53. 53. 9	52. 8. 40	50. 24. 18	48. 40. 3							
	22	46. 55. 54		45. 11. 52	43. 27. 57	41. 44. 10	40. 0. 31	38. 16. 59	36. 33. 36	34. 50. 22							
	23	33. 7. 16		31. 24. 19	29. 41. 31	27. 58. 52	26. 16. 23	- - -	- - -	- - -	- - -						
Spica η.	23	- - -		- - -	- - -	- - -	80. 1. 27	78. 19. 42	76. 38. 6	74. 56. 42							
	24	73. 15. 29		71. 34. 27	69. 53. 37	68. 12. 59	66. 32. 34	64. 52. 21	63. 12. 22	61. 32. 36							
	25	59. 53. 4		58. 13. 45	56. 34. 41	54. 55. 52	53. 17. 18	51. 39. 0	50. 0. 58	48. 23. 13							
	26	46. 45. 45		45. 8. 33	43. 31. 41	41. 55. 6	40. 18. 51	38. 42. 54	37. 7. 19	35. 32. 5							
	27	33. 57. 14		32. 22. 47	30. 48. 44	29. 15. 8	27. 41. 58	- - -	- - -	- - -	- - -						
Antares.	27	- - -		- - -	- - -	- - -	73. 33. 1	71. 59. 13	70. 25. 42	68. 52. 28							
	28	67. 19. 30		65. 46. 49	64. 14. 25	62. 42. 17	61. 10. 27	59. 38. 54	58. 7. 37	56. 36. 38							
	M. 1	55. 5. 58		- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -						

Stars' Names.	Days	Noon.		III ^b .		VI ^b .		IX ^b .		Midnight.		XV ^b .		XVIII ^b .		XXI ^b .	
		D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	
α Arietis.	19	27. 42. 27	29. 12. 20	30. 43. 33	32. 15. 59	33. 49. 31	35. 24. 3	36. 59. 28	38. 35. 39								
	20	40. 12. 30	41. 49. 46	43. 27. 31	45. 5. 41	46. 44. 18	48. 23. 0	50. 2. 4	51. 41. 19								
	21	53. 20. 47	55. 0. 22	56. 40. 5	59. 19. 55	59. 59. 50	61. 39. 48	63. 19. 48	64. 59. 51								
	22	63. 39. 54	68. 19. 57	69. 59. 58	71. 39. 57	73. 19. 53	-	-	-	-							
Aldebaran.	22	-	-	-	-	-	-	-	-	40. 8. 35	41. 52. 8	43. 35. 32	45. 18. 48				
	23	47. 1. 56	48. 44. 55	50. 27. 45	52. 10. 26	53. 52. 57	55. 35. 19	57. 17. 30	59. 59. 32								
	24	60. 41. 23	62. 23. 3	64. 4. 32	65. 45. 49	67. 26. 55	69. 7. 49	70. 48. 31	72. 29. 1								
	25	74. 9. 18	75. 49. 23	77. 29. 14	79. 8. 53	80. 48. 19	-	-	-	-							
	25	-	-	-	-	-	-	-	-	37. 52. 56	39. 28. 12	41. 3. 30	42. 38. 47				
Pollux.	26	44. 14. 3	45. 49. 16	47. 24. 25	48. 59. 29	50. 34. 28	52. 9. 18	53. 44. 0	55. 18. 33								
	27	56. 52. 58	58. 27. 12	60. 1. 15	61. 35. 7	63. 8. 49	64. 42. 19	66. 15. 36	67. 48. 42								
	28	69. 21. 36	70. 54. 16	72. 26. 44	73. 59. 0	75. 31. 3	77. 2. 53	78. 34. 31	80. 5. 57								
	M. 1	81. 37. 9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

CONFIGURATIONS of the SATELLITES of JUPITER,
At VI o'Clock in the *Morning*.

16			○	·1	2:3		.4○
17			○	1·2·	·4	3·	
18		·2	○	·1	3·	·4	
19		·1	○	3·	·2		·4
20		3·	○	1 6 2			·4
21		·3	○	·2	·1		4·
22	1. ●		○	·3 ·2			4·
23			○	·1	2 6 3	4·	
24			○	1·2·	4·	·3	
25		·2	○	4·	·1	3·	
26		4·	○	1· 3·	·2		
27	4·	3·	○		1·2·		
28	4·	·3	○	2· ·1			

Days of the Week.	Days of the Month.	<i>Sundays, and other remarkable Days.</i>	<i>Phases of the MOON.</i>
			D. H. M. ☾ Last Quarter 6. 5. 11 ● New Moon 13. 17. 49 ☽ First Quarter 20. 10. 17 ○ Full Moon 27. 20. 21
Tu.	1	David.	<i>Other Phenomena.</i>
W.	2	Chad.	
Th.	3		
F.	4		
Sa.	5		
Sun.	6	3d Sunday in Lent.	
M.	7	Perpetua.	
Tu.	8		
W.	9		
Th.	10		
F.	11		
Sa.	12	Gregory, Martyr.	
Sun.	13	4th Sund. in Lent. Mid L.	
M.	14	[Sunday.	
Tu.	15		
W.	16		
Th.	17		
F.	18	Edw. K. of West Saxons.	
Sa.	19		
Sun.	20	5th Sunday in Lent.	
M.	21	Benedict.	
Tu.	22		
W.	23		
Th.	24		
F.	25	Cambridge Term ends. [Annunc. of B. V. Mary.	
Sa.	26	Oxford Term ends.	
Sun.	27	6th Sund. in Lent. Palm	
M.	28	[Sund.	
Tu.	29		
W.	30		
Th.	31		

Days of the Week.	Days of the Month.	THE SUN'S			Diff.	Equation of Time.	Diff.
		Longitude.	Rt. Ascen.	Declin.		Add to	
			in Time.	South.		app. Time.	
		S. D. M. S.	H. M. S.	D. M. S.	M. S.	M. S.	S.
Tu.	1	11. 10. 12. 19	22. 46. 54. 8	7. 44. 53	22. 47	12. 43. 1	12, 1
W.	2	11. 11. 12. 26	22. 50. 39. 3	7. 22. 6	22. 53	12. 31, 0	12, 5
Th.	3	11. 12. 12. 31	22. 54. 23. 2	6. 59. 13	23. 0	12. 18, 5	13, 0
F.	4	11. 13. 12. 34	22. 58. 6. 8	6. 36. 13	23. 5	12. 5, 5	13, 5
Sa.	5	11. 14. 12. 36	23. 1. 49. 8	6. 13. 8	23. 10	11. 52, 0	13, 9
Sun.	6	11. 15. 12. 36	23. 5. 32. 4	5. 49. 58	23. 15	11. 38, 1	14, 2
M.	7	11. 16. 12. 35	23. 9. 14. 7	5. 26. 43	23. 20	11. 23, 9	14, 7
Tu.	8	11. 17. 12. 32	23. 12. 56. 5	5. 3. 23	23. 23	11. 9, 2	15, 1
W.	9	11. 18. 12. 27	23. 16. 38. 0	4. 40. 0	23. 27	10. 54, 1	15, 4
Th.	10	11. 19. 12. 21	23. 20. 19. 1	4. 16. 33	23. 31	10. 38, 7	15, 7
F.	11	11. 20. 12. 13	23. 23. 59. 9	3. 53. 2	23. 33	10. 23, 0	16, 0
Sa.	12	11. 21. 12. 3	23. 27. 40. 3	3. 29. 29	23. 36	10. 7, 0	16, 3
Sun.	13	11. 22. 11. 51	23. 31. 20. 5	3. 5. 53	23. 38	9. 50, 7	16, 7
M.	14	11. 23. 11. 38	23. 35. 0. 4	2. 42. 15	23. 40	9. 34, 0	16, 8
Tu.	15	11. 24. 11. 22	23. 38. 40. 1	2. 18. 35	23. 41	9. 17, 2	17, 2
W.	16	11. 25. 11. 5	23. 42. 19. 4	1. 54. 54	23. 41	9. 0, 0	17, 3
Th.	17	11. 26. 10. 45	23. 45. 58. 6	1. 31. 13	23. 43	8. 42, 7	17, 6
F.	18	11. 27. 10. 23	23. 49. 37. 5	1. 7. 30	23. 42	8. 25, 1	17, 8
Sa.	19	11. 28. 9. 58	23. 53. 16. 2	0. 43. 48	23. 42	8. 7, 3	17, 9
Sun.	20	11. 29. 9. 31	23. 56. 54. 7	0. 20. 6	23. 42	7. 49, 4	18, 2
				North.			
M.	21	0. 0. 9. 2	0. 0. 33. 1	0. 3. 36	23. 40	7. 31, 2	18, 3
Tu.	22	0. 1. 8. 30	0. 4. 11. 3	0. 27. 16	23. 39	7. 12, 9	18, 4
W.	23	0. 2. 7. 56	0. 7. 49. 5	0. 50. 55	23. 37	6. 54, 5	18, 5
Th.	24	0. 3. 7. 19	0. 11. 27. 5	1. 14. 32	23. 36	6. 36, 0	18, 5
F.	25	0. 4. 6. 40	0. 15. 5. 4	1. 38. 8	23. 33	6. 17, 5	18, 7
Sa.	26	0. 5. 5. 59	0. 18. 43. 3	2. 1. 41	23. 30	5. 58, 8	18, 6
Sun.	27	0. 6. 5. 16	0. 22. 21. 1	2. 25. 11	23. 27	5. 40, 2	18, 7
M.	28	0. 7. 4. 31	0. 25. 59. 0	2. 48. 38	23. 24	5. 21, 5	18, 6
Tu.	29	0. 8. 3. 44	0. 29. 36. 8	3. 12. 2	23. 21	5. 2, 9	18, 6
W.	30	0. 9. 2. 55	0. 33. 14. 8	3. 35. 23	23. 16	4. 44, 3	18, 5
Th.	31	0. 10. 2. 4	0. 36. 52. 7	3. 58. 39	23. 12	4. 25, 8	18, 4

Days	THE SUN'S				Place of the J's Node.
	Time of ☉'s Semidiam. passing Merid.	Semi- diameter.	Hourly Motion.	Logar. Distance.	
	M. S.	M. S.	M. S.		S. D. M.
1	1. 5, 2	16. 9, 7	2. 30, 4	9. 996248	5. 0. 33
7	1. 4, 8	16. 8, 2	2. 29, 9	9. 996941	5. 0. 14
13	1. 4, 5	16. 6, 6	2. 29, 4	9. 997661	4. 29. 55
19	1. 4, 3	16. 5, 0	2. 28, 9	9. 998380	4. 29. 35
25	1. 4, 2	16. 3, 3	2. 28, 4	9. 999107	4. 29. 16

ECLIPSES OF THE SATELLITES OF JUPITER.
MEAN TIME.

I. Satellite.		II. Satellite.		III. Satellite.	
<i>Immersion.</i>		<i>Immersion.</i>			
Days.	H. M. S.	Days.	H. M. S.	Days.	H. M. S.
2	13. 32. 15	2	15. 15. 47	4	13. 38. 24 Im.
4	8. 0. 40	6	4. 33. 46	● 4	17. 9. 16 E.
6	2. 29. 6	9	17. 52. 47	11	17. 37. 27 Im.
7	20. 57. 31	13	7. 10. 43	● 11	21. 8. 38 E.
9	15. 25. 56	16	20. 29. 41	18	21. 36. 34 Im.
11	9. 54. 20	20	9. 47. 33	19	1. 8. 1 E.
13	4. 22. 46	23	23. 6. 26	26	1. 36. 15 Im.
14	22. 51. 9	27	12. 24. 17	26	5. 7. 58 E.
16	17. 19. 34	31	1. 43. 2		
18	11. 47. 57				
20	6. 16. 22				
22	0. 44. 45				
23	19. 13. 9				
25	13. 41. 32				
27	8. 9. 56				
29	2. 38. 19				
30	21. 6. 43				
IV. Satellite.					
				12	12. 43. 44 Im.
				12	17. 7. 6 E.
				29	6. 48. 32 Im.
				29	11. 15. 28 E.

THE PLANETS'								
Days	Heliocentric		Geocentric		Declin.	Rt. Asc. in Time.	Passage Merid.	
	Long.	Lat.	Long.	Lat.				
	S. D. M.	D. M.	S. D. M.	D. M.				D. M.
♿ MERCURY.								
1	8. 9. 51	2. 48 S	10. 14. 59	1. 12 S	17. 30 S	21. 11	22. 26	
4	8. 18. 5	3. 42	10. 19. 0	1. 31	16. 35	21. 28	22. 31	
7	8. 26. 23	4. 31	10. 23. 14	1. 48	15. 29	21. 45	22. 38	
10	9. 4. 49	5. 15	10. 27. 41	2. 0	14. 10	22. 2	22. 44	
13	9. 13. 29	5. 53	11. 2. 18	2. 9	12. 41	22. 20	22. 51	
16	9. 22. 31	6. 25	11. 7. 6	2. 15	11. 0	22. 39	22. 59	
19	10. 2. 0	6. 47	11. 12. 6	2. 16	9. 7	22. 58	23. 7	
22	10. 12. 5	6. 59	11. 17. 17	2. 13	7. 4	23. 17	23. 15	
25	10. 22. 54	6. 57	11. 22. 40	2. 6	4. 51	23. 36	23. 24	
28	11. 4. 37	6. 39	11. 28. 15	1. 55	2. 27 S	23. 57	23. 34	
31	11. 17. 24	6. 0	0. 4. 2	1. 38	0. 6 N	0. 17	23. 44	
♀ VENUS.								
1	0. 20. 22	2. 46 S	11. 27. 1	1. 15 S	2. 20 S	23. 51	1. 4	
7	0. 29. 57	2. 25	0. 4. 28	1. 6	0. 47 N	0. 18	1. 9	
13	1. 9. 32	1. 59	0. 11. 54	0. 54	3. 52	0. 45	1. 14	
19	1. 19. 9	1. 29	0. 19. 19	0. 41	6. 56	1. 12	1. 19	
25	1. 28. 47	0. 57	0. 26. 42	0. 27	9. 53	1. 40	1. 25	
♂ MARS.								
1	2. 27. 33	1. 10 N	1. 20. 59	1. 10 N	19. 8 N	3. 13	4. 26	
7	3. 0. 29	1. 15	1. 24. 40	1. 12	20. 7	3. 28	4. 19	
13	3. 3. 23	1. 19	1. 28. 22	1. 13	21. 0	3. 43	4. 12	
19	3. 6. 16	1. 23	2. 2. 4	1. 15	21. 49	3. 59	4. 5	
25	3. 9. 7	1. 26	2. 5. 47	1. 16	22. 33	4. 15	3. 59	
♃ JUPITER.								
1	10. 3. 13	0. 33 S	10. 9. 0	0. 28 S	18. 29 S	20. 46	21. 57	
7	10. 3. 44	0. 33	10. 10. 18	0. 29	18. 8	20. 52	21. 40	
13	10. 4. 15	0. 34	10. 11. 34	0. 30	17. 49	20. 57	21. 23	
19	10. 4. 47	0. 35	10. 12. 47	0. 31	17. 29	21. 2	21. 6	
25	10. 5. 18	0. 35	10. 13. 57	0. 32	17. 10	21. 6	20. 49	
♄ SATURN.								
1	4. 28. 49	1. 29 N	4. 27. 28	1. 40 N	13. 55 N	10. 1	11. 12	
7	4. 29. 2	1. 30	4. 27. 1	1. 40	14. 5	9. 59	10. 48	
13	4. 29. 15	1. 30	4. 26. 35	1. 40	14. 14	9. 58	10. 25	
19	4. 29. 28	1. 31	4. 26. 11	1. 40	14. 22	9. 56	10. 1	
25	4. 29. 40	1. 31	4. 25. 51	1. 40	14. 29	9. 55	9. 38	
♅ GEORGIAN.								
1	10. 10. 47	0. 39 S	10. 12. 8	0. 38 S	17. 46 S	20. 59	22. 9	
11	10. 10. 54	0. 39	10. 12. 39	0. 38	17. 38	21. 1	21. 34	
21	10. 11. 0	0. 39	10. 13. 7	0. 38	17. 30	21. 3	21. 0	

Days of the Week.	Days of the Month.	THE MOON'S			
		Longitude.		Latitude.	
		Noon.	Midnight.	Noon.	Midnight.
		S. D. M. S.	S. D. M. S.	D. M. S.	D. M. S.
Tu.	1	6. 12. 50. 58	6. 18. 59. 26	3. 31. 45 N	3. 55. 41 N
W.	2	6. 25. 4. 57	7. 1. 7. 50	4. 16. 44	4. 34. 45
Th.	3	7. 7. 8. 27	7. 13. 7. 13	4. 49. 37	5. 1. 14
F.	4	7. 19. 4. 37	7. 25. 1. 9	5. 9. 33	5. 14. 33
Sa.	5	8. 0. 57. 19	8. 6. 53. 43	5. 16. 10	5. 14. 25
Sun.	6	8. 12. 50. 54	8. 18. 49. 27	5. 9. 17	5. 0. 48
M.	7	8. 24. 49. 58	9. 0. 53. 2	4. 48. 59	4. 33. 53
Tu.	8	9. 6. 59. 13	9. 13. 9. 5	4. 15. 34	3. 54. 8
W.	9	9. 19. 23. 9	9. 25. 41. 53	3. 29. 41	3. 2. 24
Th.	10	10. 2. 5. 42	10. 8. 34. 55	2. 32. 30	2. 0. 14
F.	11	10. 15. 9. 47	10. 21. 50. 26	1. 25. 55	0. 49. 56 N
Sa.	12	10. 28. 36. 55	11. 5. 29. 7	0. 12. 46 N	0. 25. 5 S
Sun.	13	11. 12. 26. 48	11. 19. 29. 35	1. 3. 3 S	1. 40. 29
M.	14	11. 26. 36. 59	0. 3. 48. 22	2. 16. 44	2. 51. 8
Tu.	15	0. 11. 3. 1	0. 18. 20. 9	3. 23. 1	3. 51. 45
W.	16	0. 25. 38. 55	1. 2. 58. 27	4. 16. 47	4. 37. 39
Th.	17	1. 10. 17. 53	1. 17. 36. 25	4. 53. 58	5. 5. 27
F.	18	1. 24. 53. 19	2. 2. 7. 57	5. 11. 56	5. 13. 25
Sa.	19	2. 9. 19. 48	2. 16. 28. 25	5. 9. 58	5. 1. 43
Sun.	20	2. 23. 33. 29	3. 0. 34. 48	4. 48. 55	4. 31. 52
M.	21	3. 7. 32. 14	3. 14. 25. 45	4. 10. 57	3. 46. 35
Tu.	22	3. 21. 15. 22	3. 28. 1. 9	3. 19. 13	2. 49. 19
W.	23	4. 4. 43. 13	4. 11. 21. 41	2. 17. 20	1. 43. 48
Th.	24	4. 17. 56. 43	4. 24. 28. 26	1. 9. 11 S	0. 33. 57 S
F.	25	5. 0. 56. 59	5. 7. 22. 31	0. 1. 24 N	0. 36. 26 N
Sa.	26	5. 13. 45. 6	5. 20. 4. 53	1. 10. 42	1. 43. 48
Sun.	27	5. 26. 21. 58	6. 2. 36. 24	2. 15. 21	2. 45. 0
M.	28	6. 8. 48. 17	6. 14. 57. 43	3. 12. 29	3. 37. 29
Tu.	29	6. 21. 4. 48	6. 27. 9. 41	3. 59. 46	4. 19. 11
W.	30	7. 3. 12. 30	7. 9. 13. 27	4. 35. 33	4. 48. 46
Th.	31	7. 15. 12. 45	7. 21. 10. 42	4. 58. 43	5. 5. 23

Days of the Month.	THE MOON'S					
	Age.	Pass. Mer.	Right Ascension.		Declination.	
			Noon.	Midnight.	Noon.	Midnight.
	D.	H. M.	D. M. S.	D. M. S.	D. M. S.	D. M. S.
1	18	14. 32	193. 11. 37	199. 0. 52	1. 49. 40 S	3. 48. 26 S
2	19	15. 16	204. 48. 34	210. 35. 44	5. 43. 50	7. 34. 50
3	20	16. 0	216. 23. 22	222. 12. 24	9. 20. 30	10. 59. 56
4	21	16. 45	228. 3. 42	233. 58. 3	12. 32. 17	13. 56. 43
5	22	17. 31	239. 56. 6	245. 58. 24	15. 12. 26	16. 18. 40
6	23	18. 18	252. 5. 22	258. 17. 14	17. 14. 37	17. 59. 33
7	24	19. 7	264. 34. 5	270. 55. 53	18. 32. 44	18. 53. 31
8	25	19. 57	277. 22. 20	283. 53. 5	19. 1. 16	18. 55. 30
9	26	20. 48	290. 27. 38	297. 5. 24	18. 35. 50	18. 2. 0
10	27	21. 40	303. 45. 44	310. 28. 1	17. 13. 56	16. 11. 48
11	28	22. 32	317. 11. 42	323. 56. 19	14. 55. 58	13. 27. 3
12	29	23. 24	330. 41. 33	337. 27. 15	11. 45. 57	9. 53. 48
13	1	♂	344. 13. 27	351. 0. 18	7. 52. 0	5. 42. 11
14	2	0. 17	357. 48. 10	4. 37. 32	3. 26. 14 S	1. 6. 12 S
15	3	1. 10	11. 28. 57	18. 23. 1	1. 15. 44 N	3. 37. 16 N
16	4	2. 4	25. 20. 19	32. 21. 23	5. 56. 2	8. 9. 40
17	5	2. 59	39. 26. 33	46. 35. 59	10. 15. 52	12. 12. 27
18	6	3. 55	53. 49. 37	61. 7. 3	13. 57. 25	15. 28. 59
19	7	4. 52	68. 27. 37	75. 50. 17	16. 45. 36	17. 46. 4
20	8	5. 49	83. 13. 47	90. 36. 40	18. 29. 34	18. 55. 37
21	9	6. 47	97. 57. 22	105. 14. 20	19. 4. 8	18. 55. 21
22	10	7. 43	112. 26. 8	119. 31. 32	18. 29. 51	17. 48. 34
23	11	8. 36	126. 29. 36	133. 19. 41	16. 52. 37	15. 43. 18
24	12	9. 28	140. 1. 30	146. 35. 0	14. 22. 5	12. 50. 30
25	13	10. 17	153. 0. 27	159. 18. 21	11. 10. 4	9. 22. 22
26	14	11. 4	165. 29. 20	171. 34. 12	7. 28. 58	5. 31. 21
27	15	11. 49	177. 33. 50	183. 29. 7	3. 30. 56 N	1. 29. 9 N
28	16	12. 34	189. 21. 3	195. 10. 35	0. 32. 41 S	2. 33. 18 S
29	17	13. 18	200. 58. 39	206. 46. 10	4. 31. 32	6. 26. 15
30	18	14. 2	212. 33. 59	218. 22. 55	8. 16. 21	10. 0. 50
31	19	14. 47	224. 13. 40	230. 6. 54	11. 38. 46	13. 9. 12

Days of the Week.	Days of the Month.	THE MOON'S				Proportional Logarithm.	
		Semidiameter.		Hor. Parallax.			
		Noon.	Midnight.	Noon.	Midnight.		
		M. S.	M. S.	M. S.	M. S.	Noon.	Midn.
Tu.	1	15. 2	14. 58	55. 10	54. 57	5136	5153
W.	2	14. 55	14. 52	54. 44	54. 34	5170	5183
Th.	3	14. 50	14. 48	54. 26	54. 19	5194	5203
F.	4	14. 47	14. 46	54. 14	54. 12	5210	5213
Sa.	5	14. 46	14. 47	54. 13	54. 16	5211	5207
Sun.	6	14. 49	14. 51	54. 22	54. 30	5199	5189
M.	7	14. 54	14. 58	54. 41	54. 54	5174	5157
Tu.	8	15. 2	15. 7	55. 10	55. 28	5136	5112
W.	9	15. 12	15. 18	55. 47	56. 9	5088	5059
Th.	10	15. 24	15. 31	56. 31	56. 55	5031	5000
F.	11	15. 37	15. 44	57. 19	57. 43	4970	4940
Sa.	12	15. 50	15. 56	58. 6	58. 28	4911	4884
Sun.	13	16. 2	16. 7	58. 49	59. 7	4858	4836
M.	14	16. 11	16. 14	59. 23	59. 36	4816	4800
Tu.	15	16. 17	16. 19	59. 46	59. 54	4788	4778
W.	16	16. 20	16. 21	59. 58	59. 59	4774	4772
Th.	17	16. 20	16. 19	59. 57	59. 52	4775	4781
F.	18	16. 17	16. 14	59. 45	59. 36	4789	4800
Sa.	19	16. 12	16. 8	59. 25	59. 13	4814	4828
Sun.	20	16. 5	16. 1	59. 0	58. 46	4844	4861
M.	21	15. 57	15. 53	58. 32	58. 17	4879	4897
Tu.	22	15. 49	15. 45	58. 2	57. 47	4916	4935
W.	23	15. 41	15. 37	57. 32	57. 17	4954	4972
Th.	24	15. 32	15. 28	57. 2	56. 47	4991	5011
F.	25	15. 24	15. 20	56. 32	56. 17	5030	5049
Sa.	26	15. 16	15. 13	56. 3	55. 49	5067	5085
Sun.	27	15. 9	15. 5	55. 35	55. 22	5103	5120
M.	28	15. 2	14. 58	55. 9	54. 57	5137	5153
Tu.	29	14. 55	14. 53	54. 46	54. 36	5168	5181
W.	30	14. 50	14. 48	54. 27	54. 20	5193	5202
Th.	31	14. 47	14. 46	54. 14	54. 10	5210	5215

DISTANCES of the Moon's Centre from the SUN, and from STARS EAST of her.

Stars' Names.	Days	Noon.		III ^h .		VI ^h .		IX ^h .		Midnight.		XV ^h .		XVIII ^h .		XXI ^h .	
		D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.
Antares.	1	55.	5. 58	53.	35. 35	52.	5. 29	50.	35. 41	49.	6. 11	47.	36. 59	46.	8. 6	44.	39. 33
	2	43.	11. 19	41.	43. 24	40.	15. 51	38.	48. 40	37.	21. 52	35.	55. 28	34.	29. 29	33.	3. 56
	3	31.	38. 50	-	-	-	-	-	-	-	-	-	-	-	-	-	-
α Aquilæ.	3	80.	53. 4	79.	33. 11	78.	13. 29	76.	53. 59	75.	34. 41	74.	15. 36	72.	56. 44	71.	38. 6
	4	70.	19. 41	69.	1. 30	67.	43. 35	66.	25. 56	65.	8. 32	63.	51. 25	62.	34. 36	61.	18. 5
	5	60.	1. 52	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fomalhaut.	5	92.	22. 39	90.	59. 51	89.	37. 1	88.	14. 9	86.	51. 16	85.	28. 20	84.	5. 22	82.	42. 22
	6	81.	19. 20	79.	56. 15	78.	33. 8	77.	9. 58	75.	46. 46	-	-	-	-	-	-
The Sun.	3	-	-	-	-	-	-	120.	49. 35	119.	27. 50	118.	6. 11	116.	44. 37	115.	23. 8
	4	114.	1. 43	112.	40. 22	111.	19. 3	109.	57. 47	108.	36. 34	107.	15. 23	105.	54. 12	104.	33. 2
	5	103.	11. 52	101.	50. 41	100.	29. 27	99.	8. 12	97.	46. 55	96.	25. 35	95.	4. 10	93.	42. 41
	6	92.	21. 8	90.	59. 29	89.	37. 43	88.	15. 50	86.	53. 51	85.	31. 44	84.	9. 27	82.	47. 2
	7	81.	24. 27	80.	1. 42	78.	38. 45	77.	15. 37	75.	52. 17	74.	28. 44	73.	4. 58	71.	40. 58
	8	70.	16. 44	68.	52. 15	67.	27. 30	66.	2. 29	64.	37. 12	63.	11. 38	61.	45. 46	60.	19. 37
	9	58.	53. 10	57.	26. 24	55.	59. 19	54.	31. 54	53.	4. 10	51.	36. 5	50.	7. 40	48.	38. 54
	10	47.	9. 47	45.	40. 19	44.	10. 29	42.	40. 18	41.	9. 46	39.	38. 52	-	-	-	-
	16	85.	46. 50	83.	58. 51	82.	10. 51	80.	22. 53	78.	34. 57	76.	47. 3	74.	59. 15	73.	11. 31
	17	71.	23. 53	69.	36. 21	67.	48. 58	66.	1. 44	64.	14. 38	62.	27. 42	60.	40. 59	58.	54. 29
Pollux.	18	57.	8. 11	55.	22. 7	53.	36. 19	51.	50. 48	50.	5. 34	48.	20. 37	46.	36. 2	44.	51. 49
	19	43.	7. 59	41.	24. 35	39.	41. 37	37.	59. 8	36.	17. 10	-	-	-	-	-	-

Stars' Names.	Days	Noon.		III ^h .		VI ^h .		IX ^h .		Midnight.		XV ^h .		XVIII ^h .		XXI ^h .	
		D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.
Regulus.	19	-	-	-	-	-	-	-	-	71.	7. 49	69.	21. 35	67.	35. 34	65.	49. 46
	20	64.	4. 10	62.	18. 47	60.	33. 37	58.	48. 41	57.	3. 57	55.	19. 27	53.	35. 10	51.	51. 6
	21	50.	7. 16	48.	23. 38	46.	40. 14	44.	57. 3	43.	14. 5	41.	31. 20	39.	48. 49	38.	6. 31
	22	36.	24. 26	34.	42. 34	33.	0. 55	31.	19. 28	29.	38. 15	-	-	-	-	-	-
Spica π .	22	-	-	-	-	-	-	-	-	83.	22. 48	81.	42. 20	80.	2. 4	78.	22. 2
	23	76.	42. 12	75.	2. 35	73.	23. 11	71.	43. 59	70.	5. 1	68.	26. 15	66.	47. 42	65.	9. 22
	24	63.	31. 15	61.	53. 21	60.	15. 39	58.	38. 11	57.	0. 56	55.	23. 54	53.	47. 6	52.	10. 31
	25	50.	34. 10	48.	58. 3	47.	22. 9	45.	46. 30	44.	11. 5	42.	35. 55	41.	1. 1	39.	26. 23
	26	37.	52. 2	36.	17. 57	34.	44. 10	33.	10. 43	31.	37. 35	30.	4. 49	28.	32. 26	27.	0. 27
	27	25.	28. 51	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Antares.	27	71.	18. 18	69.	45. 44	68.	13. 22	66.	41. 13	65.	9. 17	63.	37. 33	62.	6. 3	60.	34. 46
	28	59.	3. 43	57.	32. 52	56.	2. 16	54.	31. 54	53.	1. 47	51.	31. 54	50.	2. 16	48.	32. 54
	29	47.	3. 47	45.	34. 56	44.	6. 22	42.	38. 7	41.	10. 9	39.	42. 31	38.	15. 13	36.	48. 17
	30	35.	21. 42	-	-	-	-	-	-	-	-	-	-	-	-	-	-
α Aquilæ.	30	84.	25. 45	83.	5. 12	81.	44. 50	80.	24. 39	79.	4. 39	77.	44. 51	76.	25. 16	75.	5. 54
	31	73.	46. 45	72.	27. 49	71.	9. 8	69.	50. 42	68.	32. 32	67.	14. 38	65.	57. 2	64.	39. 44
	A. 1	63.	22. 44	-	-	-	-	-	-	-	-	-	-	-	-	-	-

CONFIGURATIONS of the SATELLITES of JUPITER,
at VI o'Clock in the *Morning*.

1	.4	.3 .2	○	1.	
2	.4		○	.3 .2	.1 ○
3	.4	1.	○	.3	2. ●
4	.2 .4		○	.1	3.
5	1.		○	.4 .2	3. ●
6			○	1. 2.	.4
7	.3	3.	○	2. 1	.4
8		.3 .2	○	1.	.4
at $\frac{1}{4}$ of an Hour past V o'Clock in the <i>Morning</i> .					
9		.1	○	.3 .2	.4
10	1. ●		○	2.	.3
11		2.	○	.1	4.
12	3. ●	1.	○	.2	3. 4.
13		3.	○	4. .1	2.
14		3.	○	4. 1 2.	
15		4.	○	.3 .2	1.
16	4.	.1	○	.3 .2	
17	4.		○	1. 2.	.3
18	.4	2.	○		3.
19	.4	1.	○	.3	.1 ○
20	.4	3.	○	.1 2.	.2 ○
21	3.	4 1 2.	○		
22	.3 .2		○	.4	1.
23	.1		○	.2	.4
24			○	1. 2.	.3
25	.1 ○	2.	○		3.
26		.2 1.	○	.3	.4
27		3.	○	.1 .2	4.
28	2. ●	.3	○		4.
29		.3 .2	○	.1	4.
30		.1 .3	○	.2	
31		4.	○	1. 2.	.3

Days of the Week.	Days of the Month.	<i>Sundays, and other remarkable Days.</i>	<i>Phases of the MOON.</i>
			D. H. M. ☾ Last Quarter . . 5. 0. 3 ● New Moon 12. 4. 0 ☽ First Quarter . . . 18. 18. 27 ○ Full Moon 26. 12. 19
F. Sa.	1 2	Good Friday.	<i>Other Phenomena.</i>
Sun. M. Tu. W. Th. F. Sa.	3 4 5 6 7 8 9	Easter Day. Rich. Bp. [of Chich. Easter Monday. St. Am- Easter Tuesday. [brose.	D. H. M. 1. 2. - ☽ ♄. 1. 19. - ☽ ☿ Oph. 5. 2. - ☽ d ♄. 9. 5. - ☽ λ ☿. 9. 14. - ☽ ☿ ☿. 11. 12. - ♀ δ ♄. 13. 2. - ☽ 2 ξ Ceti. 13. 8. - ☽ μ Ceti. 14. 3. - ☽ f ♄. 14. 22. - ☽ γ ♄. 15. 0. - ☽ 1 δ ♄. 15. 0. - ☽ 2 δ ♄. 15. 5. - ☽ α ♄. 17. 1. - ☽ ν ♄. 20. 8. 47 ☾ enters ♄. 21. 0. - ☽ α ♄. 21. 11. - ☽ ε ♄. 22. 4. - ♀ 1 A ♄. 22. 4. - ♀ δ ♄. 22. 11. - ☽ σ ♄. 24. 4. - ☽ 1 γ ♄. 25. 6. - ♄ 132 ♄. 26. 6. - ♀ 2 x ♄. 27. 22. - ♀ η ♄. 27. 22. - ☽ γ ☿. 28. - - - ♄ Stationary. 28. 9. - ☽ ♄ ☿. 29. 1. - ☽ ☿ Oph.
Sun. M. Tu. W. Th. F. Sa.	10 11 12 13 14 15 16	1st Sun. aft. East. Low S. Oxf. and Camb. Terms b.	
Sun. M. Tu. W. Th. F. Sa.	17 18 19 20 21 22 23	2d Sunday after Easter. Fr. East. in 15 days, 1 ret. Alphege. Easter Term begins. [b. d. kept. St. George. K. Geo. IV.	
Sun. M. Tu. W. Th. F. Sa.	24 25 26 27 28 29 30	3d Sunday after Easter. From East. in 3 w. 2 ret. [St. Mark. Ds. of Glouc. b.	

Days of the Week.	Days of the Month.	THE SUN's				Diff.	Equation	Diff.
		Longitude.	Rt. Ascen.	Declin.	of Time.			
			in Time.	North.			Add to app. Time.	
		S. D. M. S.	H. M. S.	D. M. S.	M. S.	M. S.	S.	
F.	1	0. 11. 1. 10	0. 40. 30, 8	4. 21. 51	23. 7 23. 2 22. 57 22. 52 22. 45	4. 7, 4	18, 4	
Sa.	2	0. 12. 0. 16	0. 44. 9, 0	4. 44. 58		3. 49, 0	18, 2	
Sun.	3	0. 12. 59. 19	0. 47. 47, 3	5. 8. 0		3. 30, 8	18, 0	
M.	4	0. 13. 58. 20	0. 51. 25, 8	5. 30. 57		3. 12, 8	17, 9	
Tu.	5	0. 14. 57. 20	0. 55. 4, 4	5. 53. 49		2. 54, 9	17, 7	
W.	6	0. 15. 56. 18	0. 58. 43, 2	6. 16. 34	22. 39	2. 37, 2	17, 4	
Th.	7	0. 16. 55. 15	1. 2. 22, 3	6. 39. 13	22. 32	2. 19, 8	17, 2	
F.	8	0. 17. 54. 9	1. 6. 1, 6	7. 1. 45	22. 26	2. 2, 6	16, 9	
Sa.	9	0. 18. 53. 2	1. 9. 41, 1	7. 24. 11	22. 17	1. 45, 7	16, 7	
Sun.	10	0. 19. 51. 54	1. 13. 20, 9	7. 46. 28	22. 11	1. 29, 0	16, 5	
M.	11	0. 20. 50. 43	1. 17. 1, 0	8. 8. 39	22. 2	1. 12, 5	16, 2	
Tu.	12	0. 21. 49. 30	1. 20. 41, 3	8. 30. 41	21. 53	0. 56, 3	15, 8	
W.	13	0. 22. 48. 16	1. 24. 22, 0	8. 52. 34	21. 45	0. 40, 5	15, 6	
Th.	14	0. 23. 46. 59	1. 28. 2, 9	9. 14. 19	21. 35	0. 24, 9	15, 2	
F.	15	0. 24. 45. 41	1. 31. 44, 2	9. 35. 54	21. 26	0. 9, 7	14, 9	
Sa.	16	0. 25. 44. 20	1. 35. 25, 8	9. 57. 20	21. 16	Subtr.		
Sun.	17	0. 26. 42. 57	1. 39. 7, 8	10. 18. 36	21. 5	0. 5, 2	14, 5	
M.	18	0. 27. 41. 32	1. 42. 50, 1	10. 39. 41	20. 55	0. 19, 7	14, 2	
Tu.	19	0. 28. 40. 5	1. 46. 32, 8	11. 0. 36	20. 44	0. 33, 9	13, 9	
W.	20	0. 29. 38. 35	1. 50. 15, 9	11. 21. 20	20. 33	0. 47, 8	13, 4	
Th.	21	1. 0. 37. 3	1. 53. 59, 3	11. 41. 53	20. 21	1. 1, 2	13, 1	
F.	22	1. 1. 35. 29	1. 57. 43, 2	12. 2. 14	20. 9	1. 14, 3	12, 6	
Sa.	23	1. 2. 33. 53	2. 1. 27, 5	12. 22. 23	19. 57	1. 26, 9	12, 2	
Sun.	24	1. 3. 32. 14	2. 5. 12, 3	12. 42. 20	19. 45	1. 39, 1	11, 8	
M.	25	1. 4. 30. 34	2. 8. 57, 5	13. 2. 5	19. 31	1. 50, 9	11, 3	
Tu.	26	1. 5. 28. 52	2. 12. 43, 1	13. 21. 36	19. 19	2. 2, 2	10, 9	
W.	27	1. 6. 27. 8	2. 16. 29, 3	13. 40. 55	19. 5	2. 13, 1	10, 3	
Th.	28	1. 7. 25. 22	2. 20. 16, 0	14. 0. 0	18. 52	2. 23, 4	9, 9	
F.	29	1. 8. 23. 35	2. 24. 3, 2	14. 18. 52	18. 37	2. 33, 3	9, 3	
Sa.	30	1. 9. 21. 46	2. 27. 50, 9	14. 37. 29	18. 23	2. 42, 6	8, 9	
						2. 51, 5	8, 2	

Days	THE SUN'S				Place of the D's Node.
	Time of ☉'s Semidiam. passing Merid.	Semi- diameter.	Hourly Motion.	Logar. Distance.	
	M. S.	M. S.	M. S.		S. D. M.
1	1. 4, 2	16. 1, 4	2. 27, 8	9. 999986	4. 28. 54
7	1. 4, 4	15. 59, 7	2. 27, 3	0. 000754	4. 28. 35
13	1. 4, 6	15. 58, 1	2. 26, 8	0. 001500	4. 28. 16
19	1. 4, 9	15. 56, 5	2. 26, 3	0. 002206	4. 27. 57
25	1. 5, 4	15. 54, 9	2. 25, 9	0. 002886	4. 27. 38

ECLIPSES OF THE SATELLITES OF JUPITER.
MEAN TIME.

I. Satellite.		II. Satellite.		III. Satellite.	
<i>Immersion.</i>		<i>Immersion.</i>			
Days.	H. M. S.	Days.	H. M. S.	Days.	H. M. S.
1	15. 35. 5	3	15. 0. 50	2	5. 35. 36 Im.
3	10. 3. 29	7	4. 19. 29	2	9. 7. 36 E.
5	4. 31. 50	10	17. 37. 14	9	9. 35. 26 Im.
6	23. 0. 14	14	6. 55. 49	9	13. 7. 39 E.
8	17. 28. 36	17	20. 13. 30	16	13. 34. 36 Im.
10	11. 57. 0	21	9. 31. 59	16	17. 7. 4 E.
12	6. 25. 21	24	22. 49. 37	23	17. 33. 40 Im.
14	0. 53. 45	28	12. 7. 58	23	21. 6. 21 E.
15	19. 22. 7			30	21. 32. 40 Im.
17	13. 50. 31			M. 1	1. 5. 33 E.
19	8. 18. 52				
21	2. 47. 15				
22	21. 15. 37				
*24	15. 44. 0				
26	10. 12. 22				
28	4. 40. 46				
29	23. 9. 7				
				IV. Satellite.	
				15	0. 53. 24 Im.
				15	5. 23. 40 E.

Days	THE PLANETS'							
	Heliocentric		Geocentric		Declin.	Rt. Asc. in Time.	Passage	
	Long.	Lat.	Long.	Lat.			Merid.	
	S. D. M.	D. M.	S. D. M.	D. M.	D. M.	H. M.	H. M.	
♿ MERCURY. Sup. 6 ^d . 19 ^h ₄ .								
1	11. 21. 55	5. 42 S	0. 6. 0	1. 32 S	0. 59 N	0. 24	23. 47	
4	0. 6. 21	4. 31	0. 12. 2	1. 9	3. 42	0. 46	23. 58	
7	0. 22. 9	2. 53	0. 18. 13	0. 43	6. 29	1. 8	0. 6	
10	1. 9. 15	0. 52 S	0. 24. 30	0. 13 S	9. 18	1. 31	0. 18	
13	1. 27. 27	1. 21 N	1. 0. 46	0. 20 N	12. 4	1. 54	0. 30	
16	2. 16. 17	3. 31	1. 6. 55	0. 53	14. 40	2. 17	0. 42	
19	3. 5. 8	5. 17	1. 12. 47	1. 25	17. 2	2. 40	0. 53	
22	3. 23. 22	6. 27	1. 18. 14	1. 52	19. 4	3. 1	1. 3	
25	4. 10. 28	6. 58	1. 23. 9	2. 15	20. 45	3. 21	1. 12	
28	4. 26. 10	6. 54	1. 27. 28	2. 30	22. 3	3. 38	1. 18	
30	5. 5. 51	6. 36	1. 29. 59	2. 36	22. 42	3. 49	1. 21	
♀ VENUS.								
1	2. 10. 3	0. 18 S	1. 5. 17	0. 9 S	13. 10 N	2. 12	1. 32	
7	2. 19. 44	0. 16 N	1. 12. 37	0. 8 N	15. 46	2. 41	1. 38	
13	2. 29. 25	0. 50	1. 19. 56	0. 25	18. 8	3. 9	1. 45	
19	3. 9. 7	1. 23	1. 27. 13	0. 42	20. 14	3. 39	1. 53	
25	3. 18. 51	1. 53	2. 4. 27	0. 59	22. 1	4. 9	2. 0	
♂ MARS.								
1	3. 12. 25	1. 30 N	2. 10. 7	1. 17 N	23. 16 N	4. 33	3. 52	
7	3. 15. 14	1. 33	2. 13. 50	1. 18	23. 46	4. 49	3. 47	
13	3. 18. 1	1. 36	2. 17. 34	1. 19	24. 11	5. 5	3. 41	
19	3. 20. 47	1. 39	2. 21. 18	1. 19	24. 29	5. 22	3. 35	
25	3. 23. 32	1. 41	2. 25. 2	1. 19	24. 41	5. 38	3. 29	
♃ JUPITER.								
1	10. 5. 54	0. 36 S	10. 15. 15	0. 33 S	16. 48 S	21. 12	20. 29	
7	10. 6. 25	0. 37	10. 16. 18	0. 34	16. 30	21. 16	20. 11	
13	10. 6. 57	0. 37	10. 17. 18	0. 35	16. 13	21. 20	19. 53	
19	10. 7. 28	0. 38	10. 18. 13	0. 36	15. 58	21. 23	19. 34	
25	10. 7. 59	0. 39	10. 19. 3	0. 37	15. 43	21. 27	19. 15	
♄ SATURN.								
1	4. 29. 55	1. 32 N	4. 25. 30	1. 39 N	14. 35 N	9. 53	9. 11	
7	5. 0. 8	1. 32	4. 25. 16	1. 39	14. 40	9. 52	8. 49	
13	5. 0. 21	1. 33	4. 25. 6	1. 39	14. 43	9. 52	8. 26	
19	5. 0. 34	1. 33	4. 24. 59	1. 38	14. 45	9. 51	8. 3	
25	5. 0. 47	1. 33	4. 24. 56	1. 38	14. 45	9. 51	7. 41	
♅ GEORGIAN.								
1	10. 11. 8	0. 39 S	10. 13. 33	0. 38 S	17. 23 S	21. 5	20. 21	
11	10. 11. 14	0. 39	10. 13. 54	0. 39	17. 17	21. 6	19. 46	
21	10. 11. 21	0. 39	10. 14. 10	0. 39	17. 13	21. 7	19. 10	

Days of the Week.	Days of the Month.	THE MOON'S							
		Longitude.				Latitude.			
		Noon.		Midnight.		Noon.		Midnight.	
		S. D. M. S.	S. D. M. S.	S. D. M. S.	S. D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.
F.	1	7. 27. 7. 35	8. 3. 3. 46	5. 8. 42 N	5. 8. 41 N				
Sa.	2	8. 8. 59. 39	8. 14. 55. 41	5. 5. 22	4. 58. 46				
Sun.	3	8. 20. 52. 20	8. 26. 50. 9	4. 48. 56	4. 35. 57				
M.	4	9. 2. 49. 39	9. 8. 51. 27	4. 19. 52	4. 0. 49				
Tu.	5	9. 14. 56. 7	9. 21. 4. 18	3. 38. 54	3. 14. 16				
W.	6	9. 27. 16. 35	10. 3. 33. 34	2. 47. 5	2. 17. 33				
Th.	7	10. 9. 55. 49	10. 16. 23. 52	1. 45. 54	1. 12. 27				
F.	8	10. 22. 58. 9	10. 29. 39. 1	0. 37. 32 N	0. 1. 33 N				
Sa.	9	11. 6. 26. 45	11. 13. 21. 25	0. 35. 2 S	1. 11. 42 S				
Sun.	10	11. 20. 22. 58	11. 27. 31. 9	1. 47. 51	2. 22. 50				
M.	11	0. 4. 45. 32	0. 12. 5. 28	2. 55. 59	3. 26. 37				
Tu.	12	0. 19. 30. 7	0. 26. 58. 29	3. 54. 3	4. 17. 42				
W.	13	1. 4. 29. 23	1. 12. 1. 39	4. 37. 1	4. 51. 34				
Th.	14	1. 19. 33. 58	1. 27. 5. 7	5. 1. 3	5. 5. 17				
F.	15	2. 4. 33. 56	2. 11. 59. 26	5. 4. 16	4. 58. 9				
Sa.	16	2. 19. 20. 43	2. 26. 37. 6	4. 47. 8	4. 31. 33				
Sun.	17	3. 3. 48. 5	3. 10. 53. 23	4. 11. 51	3. 48. 31				
M.	18	3. 17. 52. 50	3. 24. 46. 26	3. 22. 3	2. 52. 58				
Tu.	19	4. 1. 34. 21	4. 8. 16. 47	2. 21. 49	1. 49. 6				
W.	20	4. 14. 54. 3	4. 21. 26. 31	1. 15. 19	0. 40. 58 S				
Th.	21	4. 27. 54. 32	5. 4. 18. 32	0. 6. 30 S	0. 27. 41 N				
F.	22	5. 10. 38. 53	5. 16. 55. 57	1. 1. 9 N	1. 33. 32				
Sa.	23	5. 23. 10. 5	5. 29. 21. 36	2. 4. 31	2. 33. 45				
Sun.	24	6. 5. 30. 47	6. 11. 37. 52	3. 0. 57	3. 25. 53				
M.	25	6. 17. 43. 5	6. 23. 46. 37	3. 48. 17	4. 7. 57				
Tu.	26	6. 29. 48. 38	7. 5. 49. 18	4. 24. 42	4. 38. 26				
W.	27	7. 11. 48. 45	7. 17. 47. 7	4. 49. 1	4. 56. 23				
Th.	28	7. 23. 44. 36	7. 29. 41. 22	5. 0. 29	5. 1. 18				
F.	29	8. 5. 37. 36	8. 11. 33. 32	4. 58. 50	4. 53. 7				
Sa.	30	8. 17. 29. 28	8. 23. 25. 43	4. 44. 14	4. 32. 16				

Days of the Month.	THE MOON'S					
	Age.	Pass. Merid.	Right Ascension.		Declination.	
			Noon.	Midnight.	Noon.	Midnight.
			D. M. S.	D. M. S.	D. M. S.	D. M. S.
1	20	15. 33	236. 3. 7	242. 2. 46	14. 31. 17 S	15. 44. 12 S
2	21	16. 19	248. 6. 10	254. 13. 30	16. 47. 10	17. 39. 28
3	22	17. 7	260. 24. 49	266. 40. 3	18. 20. 25	18. 49. 25
4	23	17. 56	272. 59. 2	279. 21. 29	19. 5. 56	19. 9. 30
5	24	18. 46	285. 47. 4	292. 15. 25	18. 59. 45	18. 36. 25
6	25	19. 36	298. 46. 6	305. 18. 47	17. 59. 24	17. 8. 41
7	26	20. 27	311. 53. 10	318. 29. 2	16. 4. 26	14. 46. 58
8	27	21. 18	325. 6. 17	331. 44. 59	13. 16. 51	11. 34. 48
9	28	22. 10	338. 25. 20	345. 7. 41	9. 41. 47	7. 39. 1
10	29	23. 3	351. 52. 29	358. 40. 20	5. 27. 57	3. 10. 16 S
11	30	23. 57	5. 31. 53	12. 27. 47	0. 47. 58 S	1. 36. 45 N
12	1	♂	19. 28. 41	26. 35. 8	4. 1. 29 N	6. 23. 39
13	2	0. 53	33. 47. 31	41. 5. 58	8. 40. 36	10. 49. 40
14	3	1. 50	48. 30. 16	55. 59. 51	12. 48. 16	14. 34. 3
15	4	2. 49	63. 33. 46	71. 10. 39	16. 4. 55	17. 19. 12
16	5	3. 49	78. 48. 46	86. 26. 12	18. 15. 39	18. 53. 31
17	6	4. 48	94. 0. 53	101. 30. 54	19. 12. 32	19. 12. 58
18	7	5. 46	108. 54. 22	116. 9. 49	18. 55. 30	18. 21. 10
19	8	6. 41	123. 16. 11	130. 12. 46	17. 31. 15	16. 27. 14
20	9	7. 33	136. 59. 20	143. 35. 59	15. 10. 42	13. 43. 15
21	10	8. 22	150. 3. 8	156. 21. 30	12. 6. 30	10. 22. 3
22	11	9. 9	162. 31. 57	168. 35. 27	8. 31. 24	6. 35. 59
23	12	9. 55	174. 33. 6	180. 26. 1	4. 37. 10	2. 36. 18 N
24	13	10. 39	186. 15. 19	192. 2. 6	0. 34. 36 N	1. 26. 42 S
25	14	11. 22	197. 47. 24	203. 32. 14	3. 26. 28 S	5. 23. 35
26	15	12. 6	209. 17. 32	215. 4. 6	7. 16. 56	9. 5. 29
27	16	12. 50	220. 52. 42	226. 43. 56	10. 48. 12	12. 24. 5
28	17	13. 35	232. 38. 19	238. 36. 13	13. 52. 11	15. 11. 34
29	18	14. 21	244. 37. 48	250. 43. 9	16. 21. 23	17. 20. 50
30	19	15. 9	256. 52. 13	263. 4. 47	18. 9. 12	18. 45. 49

Days of the Week.	Days of the Month.	THE MOON's				Proportional Logarithm.	
		Semidiameter.		Hor. Parallax.			
		Noon.	Midnight.	Noon.	Midnight.		
		M. S.	M. S.	M. S.	M. S.	Noon.	Midn.
F.	1	14. 45	14. 45	54. 7	54. 7	5219	5219
Sa.	2	14. 45	14. 46	54. 8	54. 12	5218	5213
Sun.	3	14. 48	14. 50	54. 18	54. 26	5205	5194
M.	4	14. 53	14. 57	54. 37	54. 51	5179	5161
Tu.	5	15. 1	15. 6	55. 7	55. 25	5140	5116
W.	6	15. 12	15. 18	55. 46	56. 9	5089	5059
Th.	7	15. 25	15. 32	56. 34	56. 59	5027	4995
F.	8	15. 39	15. 46	57. 26	57. 54	4961	4926
Sa.	9	15. 54	16. 1	58. 21	58. 48	4892	4859
Sun.	10	16. 8	16. 15	59. 13	59. 37	4828	4799
M.	11	16. 20	16. 25	59. 58	60. 16	4774	4752
Tu.	12	16. 29	16. 32	60. 29	60. 40	4736	4723
W.	13	16. 34	16. 34	60. 46	60. 48	4716	4714
Th.	14	16. 33	16. 32	60. 45	60. 39	4717	4724
F.	15	16. 29	16. 25	60. 28	60. 15	4738	4753
Sa.	16	16. 21	16. 16	59. 59	59. 41	4772	4794
Sun.	17	16. 10	16. 4	59. 21	58. 59	4819	4845
M.	18	15. 58	15. 52	58. 37	58. 15	4873	4900
Tu.	19	15. 46	15. 41	57. 53	57. 32	4927	4954
W.	20	15. 35	15. 30	57. 12	56. 52	4979	5004
Th.	21	15. 24	15. 20	56. 34	56. 15	5027	5051
F.	22	15. 15	15. 11	55. 58	55. 43	5073	5093
Sa.	23	15. 7	15. 3	55. 28	55. 14	5112	5131
Sun.	24	15. 0	14. 57	55. 2	54. 50	5146	5162
M.	25	14. 54	14. 51	54. 40	54. 30	5175	5189
Tu.	26	14. 49	14. 47	54. 22	54. 15	5199	5209
W.	27	14. 45	14. 44	54. 9	54. 5	5217	5222
Th.	28	14. 43	14. 43	54. 2	54. 0	5226	5229
F.	29	14. 43	14. 43	53. 59	54. 1	5230	5227
Sa.	30	14. 44	14. 45	54. 4	54. 9	5223	5217

DISTANCES of the Moon's *Centre* from the SUN, and from STARS *EAST* of her.[illegible]

[illegible]

CONFIGURATIONS of the SATELLITES of JUPITER,

At $\frac{3}{4}$ of an Hour past IV o'Clock in the *Morning*.

1		4*	2*	1	○		3*	
2	4*			2	○		3*	1.●
3	4*			3*	○	1	2	
4	4*		3*	1*	○			2.●
5	4*	3*	2		○	1		
6		4*	3	1	○	2		
7			4		○	1, 3, 6, 2		
8			2	1	○	4	3	
9			2		○	1*	3*	4
10	1.○	3.●			○	2*		4*
11			3*	1*	○	2*		4*
12			3	2*	○	1		4*
13	2.○		3	1*	○			4*
At $\frac{1}{4}$ of an Hour past IV o'Clock in the <i>Morning</i> .								
14					○	3, 6, 1	2*	4*
15			1	2*	○		4*	3
16	4.●		2		○	1*	3*	
17	3.●		4*	1	○	2		
18		4*	3*		○	2*		1.●
19	4*		3	2*	○	1		
20	4*		3	1*	2	○		
21	4*				○	3*	1	2*
22	4*		1*	2*	○		3	
23		4*	2		○	1*	3*	
24			1, 6, 4		○	3, 2		
25			3*		○	4	2*	1.●
26	1.○		3*	2*	○		4	
27			3	2, 6, 1	○			4*
28	3.○				○	1	2	4*
29	2.●			1*	○		3	4*
30			2		○	1*	3*	4*

Days of the Week.	Days of the Month.	<i>Sundays, and other remarkable Days.</i>	<i>Phases of the MOON.</i>
			D. H. M. ☾ Last Quarter . . . 4. 15. 35 ● New Moon . . . 11. 12. 1 ☽ First Quarter . . . 18. 4. 12 ○ Full Moon . . . 26. 4. 0
Sun.	1	4th S. aft. East. St. Philip and St. James.	<i>Other Phenomena.</i>
M.	2	Fr. East. in 1 mo. 3 ret.	D. H. M. 2. 9. - ☽ d ♄. 5. 4. - ☽ ♃. 6. 14. - ☽ λ ♄. 7. 0. - ☽ φ ♄. 9. 17. - ☽ ♄ ♄. 10. 12. - ☽ 2 ξ Ceti. 10. 19. - ☽ μ Ceti. 12. 9. - ♀ 132 ♄. 12. 9. - ☽ γ ♄. 12. 10. - ☽ 1 δ ♄. 12. 10. - ☽ 2 δ ♄. 12. 15. - ☽ α ♄. 14. - ♀ Stationary. 14. 10. - ☽ ♄ ♄. 15. 7. - ♀ ♄ ♄. 18. - ♄ Stationary. 18. 5. - ☽ α ♄. 18. 17. - ☽ ε ♄. 19. 17. - ☽ σ ♄. 21. 9. 6 ☾ enters ♄. 21. 10. - ☽ 1 γ ♄. 22. 19. - ♀ ♄ ♄. 25. 4. - ☽ γ ♄. 25. 15. - ☽ ψ ♄. 26. 8. - ☽ φ Oph. 29. 15. - ☽ δ ♄. 31. 4. - ♀ δ.
Tu.	3	Invention of the Cross.	
W.	4		
Th.	5		
F.	6	St. John Ev. ante Port. L.	
Sa.	7		
Sun.	8	5th Su. aft. East. Rog. Sun.	
M.	9	From East. in 5 w. 4 ret.	
Tu.	10		
W.	11		
Th.	12	Ascens. D. Holy Thursday.	
F.	13	On mor. of Ascen. 5 ret.	
Sa.	14		
Sun.	15	Sunday aft. Ascens. Day.	
M.	16	Easter Term ends.	
Tu.	17		
W.	18		
Th.	19	Dunstan.	
F.	20		
Sa.	21	Oxford Term ends.	
Sun.	22	Whit-Sunday. <i>Prs. of</i> [Homburg b.]	
M.	23	Whit-Monday.	
Tu.	24	Whit-Tuesday.	
W.	25	Oxford Term begins.	
Th.	26	Camb. Term div. n. [Aug. 1st Abp. of Cant.]	
F.	27	Ven. Bede.	
Sa.	28		
Sun.	29	Trinity Sunday.	
M.	30	[K. Charles II. restored.]	
Tu.	31	On mor. of H. Tr. 1 ret.	

Days of the Week.	Days of the Month.	THE SUN'S			Diff.	Equation of Time.	Diff.
		Longitude.	Rt. Ascen. in Time.	Declin. North.		Sub. from app. Time.	
		S. D. M. S.	H. M. S.	D. M. S.	M. S.	M. S.	S.
Sun.	1	1. 10. 19. 55	2. 31. 39, 1	14. 55. 52	18. 8	2. 59, 7	7, 7
M.	2	1. 11. 18. 3	2. 35. 27, 9	15. 14. 0	17. 53	3. 7, 4	7, 2
Tu.	3	1. 12. 16. 10	2. 39. 17, 3	15. 31. 53	17. 39	3. 14, 6	6, 6
W.	4	1. 13. 14. 15	2. 43. 7, 2	15. 49. 32	17. 22	3. 21, 2	6, 1
Th.	5	1. 14. 12. 19	2. 46. 57, 7	16. 6. 54	17. 7	3. 27, 3	5, 4
F.	6	1. 15. 10. 21	2. 50. 48, 8	16. 24. 1	16. 50	3. 32, 7	4, 8
Sa.	7	1. 16. 8. 23	2. 54. 40, 5	16. 40. 51	16. 34	3. 37, 5	4, 3
Sun.	8	1. 17. 6. 23	2. 58. 32, 8	16. 57. 25	16. 18	3. 41, 8	3, 7
M.	9	1. 18. 4. 22	3. 2. 25, 7	17. 13. 43	16. 0	3. 45, 5	3, 1
Tu.	10	1. 19. 2. 19	3. 6. 19, 1	17. 29. 43	15. 42	3. 48, 6	2, 5
W.	11	1. 20. 0. 15	3. 10. 13, 2	17. 45. 25	15. 25	3. 51, 1	1, 9
Th.	12	1. 20. 58. 10	3. 14. 7, 8	18. 0. 50	15. 7	3. 53, 0	1, 3
F.	13	1. 21. 56. 3	3. 18. 3, 0	18. 15. 57	14. 48	3. 54, 3	0, 8
Sa.	14	1. 22. 53. 55	3. 21. 58, 8	18. 30. 45	14. 29	3. 55, 1	0, 2
Sun.	15	1. 23. 51. 45	3. 25. 55, 1	18. 45. 14	14. 11	3. 55, 3	0, 3
M.	16	1. 24. 49. 33	3. 29. 52, 0	18. 59. 25	13. 51	3. 55, 0	0, 9
Tu.	17	1. 25. 47. 19	3. 33. 49, 4	19. 13. 16	13. 32	3. 54, 1	1, 4
W.	18	1. 26. 45. 4	3. 37. 47, 4	19. 26. 48	13. 12	3. 52, 7	2, 0
Th.	19	1. 27. 42. 47	3. 41. 45, 9	19. 40. 0	12. 52	3. 50, 7	2, 4
F.	20	1. 28. 40. 29	3. 45. 45, 0	19. 52. 52	12. 31	3. 48, 3	3, 1
Sa.	21	1. 29. 38. 8	3. 49. 44, 6	20. 5. 23	12. 11	3. 45, 2	3, 5
Sun.	22	2. 0. 35. 47	3. 53. 44, 7	20. 17. 34	11. 50	3. 41, 7	4, 1
M.	23	2. 1. 33. 24	3. 57. 45, 3	20. 29. 24	11. 29	3. 37, 6	4, 5
Tu.	24	2. 2. 30. 59	4. 1. 46, 5	20. 40. 53	11. 8	3. 33, 1	5, 1
W.	25	2. 3. 28. 34	4. 5. 48, 1	20. 52. 1	10. 46	3. 28, 0	5, 7
Th.	26	2. 4. 26. 8	4. 9. 50, 3	21. 2. 47	10. 25	3. 22, 3	6, 0
F.	27	2. 5. 23. 39	4. 13. 52, 9	21. 13. 12	10. 2	3. 16, 3	6, 5
Sa.	28	2. 6. 21. 9	4. 17. 56, 0	21. 23. 14	9. 41	3. 9, 8	7, 1
Sun.	29	2. 7. 18. 39	4. 21. 59, 6	21. 32. 55	9. 18	3. 2, 7	7, 5
M.	30	2. 8. 16. 8	4. 26. 3, 7	21. 42. 13	8. 56	2. 55, 2	7, 9
Tu.	31	2. 9. 13. 36	4. 30. 8, 2	21. 51. 9	8. 33	2. 47, 3	8, 4

Days	Time of ☉'s Semidiam. passing Merid.	THE SUN'S			Place of the ☉'s Node.
	M. S.	Semi- diameter. M. S.	Hourly Motion. M. S.	Logar. Distance.	S. D. M.
1	1. 5, 8	15. 53, 5	2. 25, 4	0. 003555	4. 27. 19
7	1. 6, 3	15. 52, 1	2. 25, 0	0. 004196	4. 27. 0
13	1. 6, 8	15. 50, 9	2. 24, 6	0. 004781	4. 26. 41
19	1. 7, 2	15. 49, 7	2. 24, 3	0. 005293	4. 26. 22
25	1. 7, 7	15. 48, 7	2. 23, 9	0. 005752	4. 26. 3

ECLIPSES OF THE SATELLITES OF JUPITER.
MEAN TIME.

I. Satellite.		II. Satellite.		III. Satellite.	
<i>Immersion.</i>		<i>Immersion.</i>			
Days.	H. M. S.	Days.	H. M. S.	Days.	H. M. S.
1	17. 37. 31	2	1. 25. 34	1	1. 5. 33 E.
3	12. 5. 53	5	14. 43. 47	8	1. 31. 50 Im.
5	6. 34. 17	9	4. 1. 22	8	5. 4. 53 E.
7	1. 2. 39	12	17. 19. 29	15	5. 31. 35 Im.
8	19. 31. 3	16	6. 37. 1	15	9. 4. 49 E.
10	13. 59. 25	19	19. 55. 2	22	9. 31. 7 Im.
12	8. 27. 50	23	9. 12. 31	22	13. 4. 29 E.
14	2. 56. 12	26	22. 30. 27	*29	13. 31. 6 Im.
15	21. 24. 37	30	11. 47. 53	29	17. 4. 37 E.
17	15. 53. 0				
19	10. 21. 25				
21	4. 49. 48				
22	23. 18. 14				
24	17. 46. 37				
26	12. 15. 4				
28	6. 43. 26				
30	1. 11. 54				
31	19. 40. 17				
				IV. Satellite.	
				1	18. 59. 7 Im.
				1	23. 32. 26 E.
				18	13. 4. 36 Im.
				18	17. 40. 27 E.

THE PLANETS'								
Days	Heliocentric		Geocentric		Declin.	Rt. Asc.	Passage	
	Long.	Lat.	Long.	Lat.		in Time.	Merid.	
	S. D. M.	D. M.	S. D. M.	D. M.	D. M.	H. M.	H. M.	
♂	Gr. Elong. 3 ^d .		MERCURY.			Inf. ♂ 26 ^d . 0 ^h ^b .		
1	5. 10. 27	6. 24 N	2. 1. 7	2. 38 N	22. 59 N	3. 54	1. 22	
4	5. 23. 25	5. 36	2. 4. 5	2. 37	23. 33	4. 6	1. 23	
7	6. 5. 13	4. 37	2. 6. 19	2. 26	23. 47	4. 16	1. 21	
10	6. 16. 4	3. 32	2. 7. 48	2. 6	23. 42	4. 23	1. 16	
13	6. 26. 8	2. 26	2. 8. 32	1. 36	23. 19	4. 26	1. 8	
16	7. 5. 36	1. 19	2. 8. 32	0. 57	22. 41	4. 27	0. 56	
19	7. 14. 35	0. 13 N	2. 7. 51	0. 10 N	21. 48	4. 24	0. 42	
22	7. 23. 14	0. 51 S	2. 6. 37	0. 41 S	20. 45	4. 20	0. 26	
25	8. 1. 38	1. 51	2. 5. 2	1. 34	19. 37	4. 14	0. 8	
28	8. 9. 55	2. 49	2. 3. 20	2. 23	18. 30	4. 7	23. 43	
31	8. 18. 9	3. 42	2. 1. 48	3. 5	17. 31	4. 1	23. 26	
♀	VENUS.							
1	3. 28. 35	2. 20 N	2. 11. 40	1. 14 N	23. 26 N	4. 40	2. 8	
7	4. 8. 20	2. 43	2. 18. 51	1. 29	24. 28	5. 11	2. 16	
13	4. 18. 5	3. 1	2. 25. 59	1. 42	25. 6	5. 42	2. 24	
19	4. 27. 50	3. 14	3. 3. 5	1. 53	25. 18	6. 14	2. 32	
25	5. 7. 35	3. 22	3. 10. 8	2. 1	25. 5	6. 45	2. 39	
♂	MARS.							
1	3. 26. 16	1. 43 N	2. 28. 45	1. 19 N	24. 47 N	5. 55	3. 23	
7	3. 29. 0	1. 45	3. 2. 29	1. 19	24. 46	6. 11	3. 16	
13	4. 1. 42	1. 46	3. 6. 14	1. 19	24. 38	6. 27	3. 9	
19	4. 4. 23	1. 48	3. 9. 58	1. 19	24. 24	6. 44	3. 2	
25	4. 7. 4	1. 49	3. 13. 41	1. 19	24. 3	7. 0	2. 54	
♂	JUPITER.					♂ 11 ^d . 23 ^h ^b .		
1	10. 8. 31	0. 39 S	10. 19. 48	0. 39 S	15. 30 S	21. 30	18. 55	
7	10. 9. 2	0. 40	10. 20. 29	0. 40	15. 19	21. 32	18. 35	
13	10. 9. 34	0. 41	10. 21. 3	0. 41	15. 9	21. 35	18. 14	
19	10. 10. 5	0. 41	10. 21. 32	0. 43	15. 1	21. 37	17. 52	
25	10. 10. 37	0. 42	10. 21. 54	0. 44	14. 55	21. 38	17. 29	
♂	SATURN.					♂ 16 ^d . 11 ^h ^b .		
1	5. 0. 59	1. 34 N	4. 24. 56	1. 37 N	14. 45 N	9. 51	7. 18	
7	5. 1. 12	1. 34	4. 25. 1	1. 36	14. 42	9. 51	6. 56	
13	5. 1. 25	1. 35	4. 25. 10	1. 36	14. 39	9. 52	6. 33	
19	5. 1. 38	1. 35	4. 25. 22	1. 35	14. 34	9. 53	6. 10	
25	5. 1. 50	1. 36	4. 25. 37	1. 35	14. 29	9. 54	5. 47	
♂	GEORGIAN.					♂ 5 ^d . 4 ^h ^b .		
1	10. 11. 27	0. 39 S	10. 14. 21	0. 39 S	17. 10 S	21. 8	18. 33	
11	10. 11. 34	0. 39	10. 14. 28	0. 40	17. 8	21. 9	17. 55	
21	10. 11. 40	0. 40	10. 14. 29	0. 40	17. 8	21. 9	17. 16	

Days of the Week.	Days of the Month.	THE MOON'S					
		Longitude.			Latitude.		
		Noon.			Midnight.		
		S. D. M. S.	S. D. M. S.	S. D. M. S.	D. M. S.	D. M. S.	D. M. S.
Sun.	1	8. 29. 22. 38	9. 5. 20. 37	4. 17. 18 N	3. 59. 28 N		
M.	2	9. 11. 20. 9	9. 17. 21. 41	3. 38. 52	3. 15. 44		
Tu.	3	9. 23. 25. 46	9. 29. 32. 59	2. 50. 13	2. 22. 30		
W.	4	10. 5. 43. 54	10. 11. 59. 8	1. 52. 49	1. 21. 25		
Th.	5	10. 18. 19. 17	10. 24. 44. 56	0. 48. 37 N	0. 14. 44 N		
F.	6	11. 1. 16. 39	11. 7. 54. 57	0. 19. 52 S	0. 54. 46 S		
Sa.	7	11. 14. 40. 12	11. 21. 32. 43	1. 29. 29	2. 3. 30		
Sun.	8	11. 28. 32. 39	0. 5. 39. 57	2. 36. 15	3. 7. 5		
M.	9	0. 12. 54. 22	0. 20. 15. 26	3. 35. 24	4. 0. 35		
Tu.	10	0. 27. 42. 26	1. 5. 14. 25	4. 22. 0	4. 39. 6		
W.	11	1. 12. 50. 15	1. 20. 28. 36	4. 51. 25	4. 58. 35		
Th.	12	1. 28. 8. 1	2. 5. 47. 3	5. 0. 25	4. 56. 53		
F.	13	2. 13. 24. 15	2. 20. 58. 17	4. 48. 4	4. 34. 13		
Sa.	14	2. 28. 27. 57	3. 5. 52. 17	4. 15. 46	3. 53. 11		
Sun.	15	3. 13. 10. 32	3. 20. 22. 10	3. 27. 1	2. 57. 55		
M.	16	3. 27. 26. 52	4. 4. 24. 34	2. 26. 29	1. 53. 21		
Tu.	17	4. 11. 15. 21	4. 17. 59. 25	1. 19. 4	0. 44. 13 S		
W.	18	4. 24. 37. 8	5. 1. 8. 57	0. 9. 18 S	0. 25. 14 N		
Th.	19	5. 7. 35. 19	5. 13. 56. 45	0. 58. 57 N	1. 31. 29		
F.	20	5. 20. 13. 47	5. 26. 26. 59	2. 2. 30	2. 31. 43		
Sa.	21	6. 2. 36. 48	6. 8. 43. 43	2. 58. 52	3. 23. 42		
Sun.	22	6. 14. 48. 13	6. 20. 50. 41	3. 46. 1	4. 5. 39		
M.	23	6. 26. 51. 28	7. 2. 50. 54	4. 22. 25	4. 36. 12		
Tu.	24	7. 8. 49. 17	7. 14. 46. 50	4. 46. 53	4. 54. 24		
W.	25	7. 20. 43. 49	7. 26. 40. 23	4. 58. 41	4. 59. 42		
Th.	26	8. 2. 36. 44	8. 8. 33. 4	4. 57. 28	4. 51. 59		
F.	27	8. 14. 29. 30	8. 20. 26. 15	4. 43. 19	4. 31. 33		
Sa.	28	8. 26. 23. 30	9. 2. 21. 28	4. 16. 46	3. 59. 7		
Sun.	29	9. 8. 20. 24	9. 14. 20. 35	3. 38. 46	3. 15. 53		
M.	30	9. 20. 22. 21	9. 26. 26. 4	2. 50. 40	2. 23. 21		
Tu.	31	10. 2. 32. 7	10. 8. 40. 57	1. 54. 11	1. 23. 25		

Days of the Month.	THE MOON'S					
	Age.	Pass. Merid.	Right Ascension.		Declination.	
			Noon.	Midnight.	Noon.	Midnight.
			D. M. S.	D. M. S.	D. M. S.	D. M. S.
1	20	15. 57	269. 20. 33	275. 39. 5	19. 10. 10 S	19. 21. 49 S
2	21	16. 46	281. 59. 56	288. 22. 36	19. 20. 25	19. 5. 44
3	22	17. 35	294. 46. 37	301. 11. 38	18. 37. 41	17. 56. 20
4	23	18. 24	307. 37. 18	314. 3. 29	17. 1. 52	15. 54. 32
5	24	19. 13	320. 30. 11	326. 57. 32	14. 34. 45	13. 3. 7
6	25	20. 3	333. 25. 54	339. 55. 48	11. 20. 20	9. 27. 17
7	26	20. 54	346. 27. 54	353. 3. 1	7. 25. 1	5. 14. 48
8	27	21. 46	359. 42. 6	6. 26. 9	2. 58. 6 S	0. 36. 37 S
9	28	22. 40	13. 16. 10	20. 13. 8	1. 47. 38 N	4. 12. 24 N
10	29	23. 36	27. 17. 54	34. 31. 5	6. 35. 14	8. 53. 28
11	1	♂	41. 52. 59	49. 23. 29	11. 4. 18	13. 4. 56
12	2	0. 35	57. 1. 56	64. 47. 7	14. 52. 37	16. 24. 54
13	3	1. 36	72. 37. 14	80. 30. 0	17. 39. 42	18. 35. 30
14	4	2. 38	88. 22. 48	96. 12. 49	19. 11. 17	19. 26. 48
15	5	3. 38	103. 57. 22	111. 34. 2	19. 22. 21	18. 58. 51
16	6	4. 36	119. 0. 53	126. 16. 35	18. 17. 38	17. 20. 20
17	7	5. 31	133. 20. 23	140. 12. 2	16. 8. 49	14. 45. 2
18	8	6. 22	146. 51. 50	153. 20. 29	13. 10. 50	11. 28. 5
19	9	7. 10	159. 38. 55	165. 48. 16	9. 38. 30	7. 43. 39
20	10	7. 56	171. 49. 50	177. 44. 58	5. 45. 1	3. 43. 57 N
21	11	8. 40	183. 35. 0	189. 21. 17	1. 41. 42 N	0. 20. 34 S
22	12	9. 23	195. 5. 7	200. 47. 43	2. 21. 47 S	4. 20. 51
23	13	10. 6	206. 30. 15	212. 13. 44	6. 16. 45	8. 8. 29
24	14	10. 49	217. 59. 6	223. 47. 9	9. 55. 4	11. 35. 29
25	15	11. 34	229. 38. 33	235. 33. 45	13. 8. 46	14. 33. 58
26	16	12. 19	241. 33. 6	247. 36. 42	15. 50. 8	16. 56. 24
27	17	13. 6	253. 44. 29	259. 56. 13	17. 51. 56	18. 35. 59
28	18	13. 54	266. 11. 28	272. 29. 40	19. 7. 56	19. 27. 14
29	19	14. 42	278. 50. 12	285. 12. 19	19. 33. 27	19. 26. 25
30	20	15. 31	291. 35. 21	297. 58. 39	19. 6. 0	18. 32. 15
31	21	16. 19	304. 21. 41	310. 44. 3	17. 45. 24	16. 45. 47

Days of the Week.	Days of the Month.	THE MOON'S				Proportional Logarithm.	
		Semidiameter.		Hor. Parallax.			
		Noon.	Midnight.	Noon.	Midnight.	Noon.	Midn.
		M. S.	M. S.	M. S.	M. S.		
Sun.	1	14. 47	14. 49	54. 15	54. 24	5209	5197
M.	2	14. 52	14. 56	54. 35	54. 48	5182	5165
Tu.	3	15. 0	15. 5	55. 3	55. 20	5145	5123
W.	4	15. 10	15. 16	55. 40	56. 2	5097	5068
Th.	5	15. 22	15. 29	56. 25	56. 51	5039	5005
F.	6	15. 37	15. 44	57. 18	57. 46	4971	4936
Sa.	7	15. 52	16. 0	58. 14	58. 43	4901	4865
Sun.	8	16. 8	16. 15	59. 11	59. 38	4831	4798
M.	9	16. 22	16. 28	60. 3	60. 25	4768	4741
Tu.	10	16. 33	16. 37	60. 44	60. 59	4718	4701
W.	11	16. 40	16. 42	61. 10	61. 16	4688	4680
Th.	12	16. 42	16. 41	61. 17	61. 13	4679	4684
F.	13	16. 38	16. 35	61. 4	60. 51	4695	4710
Sa.	14	16. 30	16. 25	60. 34	60. 13	4730	4756
Sun.	15	16. 18	16. 11	59. 50	59. 25	4783	4814
M.	16	16. 4	15. 57	58. 59	58. 32	4845	4879
Tu.	17	15. 50	15. 43	58. 5	57. 39	4912	4945
W.	18	15. 35	15. 29	57. 13	56. 49	4977	5008
Th.	19	15. 23	15. 17	56. 26	56. 4	5037	5065
F.	20	15. 12	15. 7	55. 45	55. 27	5090	5114
Sa.	21	15. 2	14. 58	55. 10	54. 56	5136	5154
Sun.	22	14. 55	14. 52	54. 43	54. 32	5172	5186
M.	23	14. 49	14. 47	54. 23	54. 14	5198	5210
Tu.	24	14. 45	14. 44	54. 8	54. 3	5218	5225
W.	25	14. 43	14. 42	53. 59	53. 57	5230	5233
Th.	26	14. 42	14. 42	53. 56	53. 56	5234	5234
F.	27	14. 42	14. 43	53. 58	54. 2	5231	5226
Sa.	28	14. 45	14. 47	54. 7	54. 14	5219	5210
Sun.	29	14. 49	14. 51	54. 21	54. 30	5201	5189
M.	30	14. 54	14. 57	54. 41	54. 53	5174	5168
Tu.	31	15. 1	15. 6	55. 7	55. 23	5140	5119

DISTANCES of the Moon's Centre from the SUN, and from STARS EAST of her.

Stars' Names.	Days	Noon.		III ^h .		VI ^h .		IX ^h .		Midnight.		XV ^h .		XVIII ^h .		XXI ^h .	
		D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.
Fomalhaut.	1	65.	53. 59	64.	31. 49	63.	9. 43	61.	47. 41	60.	25. 46	59.	3. 57	57.	42. 17	56.	20. 45
	2	54.	59. 23	53.	38. 11	52.	17. 11	50.	56. 25	49.	35. 55	48.	15. 42	46.	55. 48	45.	36. 14
	3	44.	17. 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
α Pegasi.	3	58.	40. 49	57.	18. 7	55.	55. 28	54.	32. 55	53.	10. 30	51.	48. 15	50.	26. 12	49.	4. 25
	4	47.	42. 54	46.	21. 43	45.	0. 53	43.	40. 27	42.	20. 28	-	-	-	-	-	-
The Sun.	2	119.	53. 53	118.	31. 24	117.	8. 44	115.	45. 54	114.	22. 54	112.	59. 43	111.	36. 20	110.	12. 45
	3	108.	48. 58	107.	24. 58	106.	0. 43	104.	36. 14	103.	11. 32	101.	46. 35	100.	21. 21	98.	55. 51
	4	97.	30. 6	96.	4. 4	94.	37. 43	93.	11. 4	91.	44. 7	90.	16. 51	88.	49. 15	87.	21. 19
	5	85.	53. 3	84.	24. 26	82.	55. 27	81.	26. 6	79.	56. 24	78.	26. 19	76.	55. 50	75.	24. 58
	6	73.	53. 43	72.	22. 3	70.	49. 59	69.	17. 29	67.	44. 36	66.	11. 18	64.	37. 34	63.	3. 24
	7	61.	28. 49	59.	53. 48	58.	18. 22	56.	42. 30	55.	6. 13	53.	29. 30	51.	52. 22	50.	14. 49
	8	48.	36. 52	46.	58. 30	45.	19. 44	43.	40. 36	42.	1. 5	40.	21. 13	-	-	-	-
	14	59.	9. 8	57.	17. 42	55.	26. 35	53.	35. 48	51.	45. 22	49.	55. 17	48.	5. 34	46.	16. 13
Regulus.	15	44.	27. 15	42.	38. 41	40.	50. 30	39.	2. 43	37.	15. 20	35.	28. 22	33.	41. 49	31.	55. 41
	16	30.	9. 58	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Spica η .	16	83.	57. 47	82.	13. 5	80.	28. 49	78.	44. 58	77.	1. 33	75.	18. 33	73.	35. 59	71.	53. 50
	17	70.	12. 6	68.	30. 48	66.	49. 55	65.	9. 26	63.	29. 23	61.	49. 45	60.	10. 30	58.	31. 40
	18	56.	53. 14	55.	15. 12	53.	37. 33	52.	0. 18	50.	23. 26	48.	46. 57	47.	10. 52	45.	35. 9
	19	43.	59. 50	42.	24. 54	40.	50. 20	39.	16. 8	37.	42. 20	-	-	-	-	-	-

Stars' Names.	Days	Noon.		III ^h .		VI ^h .		IX ^h .		Midnight.		XV ^h .		XVIII ^h .		XXI ^h .	
		D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.
Antares.	19	-	-	-	-	-	-	-	-	83.	36.30	82.	2.53	80.	29.33	78.	56.29
	20	77.	23.42	75.	51.11	74.	18.55	72.	46.55	71.	15.11	69.	43.42	68.	12.27	66.	41.27
	21	65.	10.41	63.	40.9	62.	9.51	60.	39.46	59.	9.55	57.	40.17	56.	10.52	54.	41.40
	22	53.	12.41	51.	43.55	50.	15.22	48.	47.2	47.	18.56	45.	51.3	44.	23.24	42.	56.0
	23	41.	28.51	40.	1.56	38.	35.18	37.	8.59	35.	42.58	34.	17.18	32.	51.58	31.	27.2
	24	30.	2.29	-	-	-	-	-	-	-	-	-	-	-	-	-	-
α Aquilæ.	24	79.	27.1	78.	7.58	76.	49.5	75.	30.21	74.	11.47	72.	53.24	71.	35.14	70.	17.16
	25	68.	59.31	67.	42.0	66.	24.44	65.	7.45	63.	51.2	62.	34.37	61.	18.31	60.	2.46
	26	58.	47.24	57.	32.25	56.	17.52	55.	3.44	53.	50.5	-	-	-	-	-	-
Fomalhaut.	26	-	-	-	-	-	-	-	-	85.	11.29	83.	48.23	82.	25.17	81.	2.11
	27	79.	39.7	78.	16.4	76.	53.2	75.	30.3	74.	7.6	72.	44.11	71.	21.20	69.	58.32
	28	68.	35.48	67.	13.8	65.	50.32	64.	28.2	63.	5.38	61.	43.20	60.	21.10	58.	59.8
	29	57.	37.15	56.	15.31	54.	53.58	53.	32.39	52.	11.33	50.	50.43	49.	30.9	48.	9.54
	30	46.	49.58	-	-	-	-	-	-	-	-	-	-	-	-	-	-
α Pegasi.	30	61.	32.6	60.	9.43	58.	47.25	57.	25.15	56.	3.14	54.	41.24	53.	19.46	51.	58.23
	31	50.	37.16	49.	16.25	47.	55.54	46.	35.48	45.	16.8	43.	56.58	42.	38.21	41.	20.19
	J. 1	40.	2.55	-	-	-	-	-	-	-	-	-	-	-	-	-	-
The Sun.	31	-	-	-	-	-	-	-	-	121.	0.46	119.	35.24	118.	9.47	116.	43.56
	J. 1	115.	17.51	-	-	-	-	-	-	-	-	-	-	-	-	-	-

DISTANCES of the MOON'S Centre from the SUN, and from STARS WEST of her.

Stars' Names.	Days	Noon.		III ^h .		VI ^h .		IX ^h .		Midnight.		XV ^h .		XVIII ^h .		XXI ^h .	
		D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.
Antares.	1	23.	39. 29	25.	1. 20	26.	23. 55	27.	47. 12	29.	11. 7	30.	35. 39	32.	0. 44	33.	26. 20
	2	34.	52. 24	36.	18. 50	37.	45. 41	39.	12. 55	40.	40. 32	42.	8. 28	43.	36. 45	45.	5. 22
	3	46.	34. 20	48.	3. 37	49.	33. 13	51.	3. 9	52.	33. 24	54.	3. 58	55.	34. 52	57.	6. 6
	4	58.	37. 40	60.	9. 34	61.	41. 49	63.	14. 25	64.	47. 21	66.	20. 38	67.	54. 18	69.	28. 19
	5	71.	2. 42	72.	37. 27	74.	12. 36	75.	48. 8	77.	24. 3	79.	0. 21	80.	37. 4	82.	14. 12
	6	83.	51. 43	85.	29. 40	87.	8. 1	88.	46. 48	90.	26. 0	92.	5. 37	93.	45. 39	95.	26. 8
	7	97.	7. 1	98.	48. 20	100.	30. 4	102.	12. 14	103.	54. 50	-	-	-	-	-	-
α Aquilæ.	7	-	-	-	-	-	-	-	-	58.	51. 40	60.	20. 45	61.	50. 42	63.	21. 28
	8	64.	53. 2	66.	25. 22	67.	58. 25	69.	32. 10	71.	6. 36	72.	41. 39	74.	17. 19	75.	53. 32
The Sun.	9	77.	30. 18	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	14	-	-	-	-	39.	13. 13	40.	55. 47	42.	38. 4	44.	20. 4	46.	1. 45	47.	43. 6
	15	49.	24. 8	51.	4. 48	52.	45. 6	54.	25. 3	56.	4. 37	57.	43. 47	59.	22. 34	61.	0. 57
	16	62.	38. 56	64.	16. 31	65.	53. 42	67.	30. 29	69.	6. 51	70.	42. 49	72.	18. 22	73.	53. 31
	17	75.	28. 16	77.	2. 36	78.	36. 33	80.	10. 7	81.	43. 16	83.	16. 2	84.	48. 25	86.	20. 26
	18	87.	52. 4	89.	23. 20	90.	54. 15	92.	24. 49	93.	55. 1	95.	24. 52	96.	54. 24	98.	23. 36
	19	99.	52. 27	101.	20. 59	102.	49. 14	104.	17. 9	105.	44. 47	107.	12. 7	108.	39. 10	110.	5. 57
Pollux.	20	111.	32. 27	112.	58. 42	114.	24. 42	115.	50. 27	117.	15. 57	118.	41. 13	120.	6. 15	121.	31. 4
	18	34.	20. 46	35.	55. 27	37.	30. 4	39.	4. 36	40.	39. 1	42.	13. 19	43.	47. 30	45.	21. 32
	19	46.	55. 24	48.	29. 4	50.	2. 33	51.	35. 51	53.	8. 58	54.	41. 52	56.	14. 35	57.	47. 6
	20	59.	19. 25	60.	51. 33	62.	23. 30	63.	55. 15	65.	26. 49	66.	58. 11	68.	20. 23	70.	0. 24
	21	71.	31. 14	73.	1. 54	74.	32. 24	76.	2. 45	77.	32. 55	-	-	-	-	-	-

Stars' Names.	Days	Noon.		III ^h .		VI ^h .		IX ^h .		Midnight.		XV ^h .		XVIII ^h .		XXI ^h .	
		D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.
Regulus.	21	-	-	-	-	-	-	-	-	41. 19. 20	42. 50. 41	42. 50. 41	44. 21. 53	45. 52. 55			
	22	47. 23. 48	48. 54. 32	50. 25. 8	51. 55. 36	53. 25. 56	54. 56. 9	56. 26. 15	57. 56. 14	65. 24. 42	66. 54. 8	68. 23. 30	69. 52. 48				
	23	59. 26. 7	70. 55. 54	72. 25. 35	73. 55. 11	75. 24. 42	76. 54. 8	78. 23. 30	79. 52. 48	77. 18. 23	78. 48. 11	80. 17. 5	81. 47. 5				
	24	71. 22. 2	72. 51. 12	74. 20. 19	75. 49. 23	77. 18. 23	78. 48. 11	80. 17. 5	81. 47. 5	79. 52. 48	81. 17. 5	82. 47. 5	84. 17. 5				
Spica ♀.	24	-	-	-	-	-	-	-	-	24. 17. 5	25. 43. 11	27. 9. 29	28. 35. 59				
	25	30. 2. 40	31. 29. 30	32. 56. 29	34. 23. 36	35. 50. 49	37. 18. 7	38. 45. 30	40. 12. 58	35. 50. 49	37. 18. 7	38. 45. 30	40. 12. 58				
	26	41. 40. 31	43. 8. 8	44. 35. 49	46. 3. 33	47. 31. 22	48. 59. 13	50. 27. 8	51. 55. 7	47. 31. 22	48. 59. 13	50. 27. 8	51. 55. 7				
	27	53. 23. 9	54. 51. 15	56. 19. 24	57. 47. 38	59. 15. 55	60. 44. 16	62. 12. 42	63. 41. 11	59. 15. 55	60. 44. 16	62. 12. 42	63. 41. 11				
	28	65. 9. 45	66. 38. 23	68. 7. 6	69. 35. 54	71. 4. 46	72. 33. 44	74. 2. 47	75. 31. 56	71. 4. 46	72. 33. 44	74. 2. 47	75. 31. 56				
	29	77. 1. 11	78. 30. 32	80. 0. 0	81. 29. 34	82. 59. 15	-	-	-	82. 59. 15	-	-	-				
	29	-	-	-	-	-	-	-	-	37. 43. 10	39. 10. 19	40. 37. 46	42. 5. 30				
Antares.	30	43. 33. 32	45. 1. 51	46. 30. 26	47. 59. 17	49. 28. 24	50. 57. 46	52. 27. 23	53. 57. 15	49. 28. 24	50. 57. 46	52. 27. 23	53. 57. 15				
	31	55. 27. 22	56. 57. 44	58. 28. 21	59. 59. 13	61. 30. 21	63. 1. 44	64. 33. 23	66. 5. 18	61. 30. 21	63. 1. 44	64. 33. 23	66. 5. 18				
	J. 1	67. 37. 29	-	-	-	-	-	-	-	-	-	-	-				

CONFIGURATIONS of the SATELLITES of JUPITER,
At III o'Clock in the *Morning*.

1			.1	○	.2	3*	4*
2			3*	○	1*	4*2*	
3		3*	2.4	1○			
4	1.●	.3	4*	.2	○		
5		4*		.3	○	.1	.2
6	4*		1*	○		.3	2.●
7	.4		2*	○	.1		3*
8	.4		.1	○	.2	3*	
9		.4		3*	○	1*	2*
10		3*.4	2.1	○			
11		.3	.2	.4	○		1.●
12			.3	○	.1	.2.4	
13			1*	○	2*	.3	.4
14			2*	○	.1	.3	.4
15	.2○		1*	○		3*	.4
16			3*	○	1*	2*	4*
17		3*	.1	2*	○		4*
18		.3	.2	○	1*		4*
19	.1○		.3	○	.2		4.●
20			4* 1*	○	2.3		
21		4*	2*	○	.1	.3	
22		4*		1*.2	○	3*	
23	4*			○	.1	.2	3.●
24	.4		3* .1	2*○			
25	.4	.3	.2	○	1*		
26		.4	.3	.1	○	.2	
27			.4	○	.3	2*	1.●
28			2*	○	.1	.3	.4○
29			1 2	○		.4	3*
30	3.●			○	.1	.2	.4
31	2.●		.3* .1	○			.4

Days of the Week.	Days of the Month.		<i>Phases of the MOON.</i>
		<i>Sundays, and other remarkable Days.</i>	D. H. M. ☾ Last Quarter . . . 3. 3. 20 ● New Moon 9. 18. 51 ☽ First Quarter . . . 16. 15. 59 ○ Full Moon 24. 19. 0
			<i>Other Phenomena.</i>
			D. H. M.
W.	1	Nicomede.	* 1. 14. - ☽ ♃.
Th.	2		2. 21. - ☽ λ $\overline{\text{m}}$.
F.	3	Trinity Term begins.	3. 7. - ☽ φ $\overline{\text{m}}$.
Sa.	4		3. 18. - ♀ x II.
Sun.	5	1st Sunday after Trinity. [Boniface. D. of Cumb. b.]	6. 3. - ☽ v x.
M.	6	In 8 days of H. Tr. 2 ret.	6. 23. - ☽ 2 ξ Ceti.
Tu.	7		7. 6. - ☽ μ Ceti.
W.	8		8. - - - ♀ Stationary.
Th.	9		8. 0. - ☽ f 8.
F.	10		8. 14. - ☽ ☿
Sa.	11	St. Barnabas.	8. 19. - ☽ γ 8.
			8. 20. - ☽ 1 δ 8.
			8. 21. - ☽ 2 δ 8.
Sun.	12	2d Sunday after Trinity.	9. 1. - ☽ α 8.
M.	13	In 15 d. of H. Tr. 3 ret.	10. 20. - ☽ v II.
Tu.	14		11. - - - ♃ Station. near μ 13.
W.	15		11. 9. - ☽ ζ II.
Th.	16		14. 13. - ☽ η.
F.	17	St. Alban.	14. 13. - ☽ α Ω.
Sa.	18		15. 0. - ☽ ε Ω.
			15. 22. - ♀ γ $\overline{\text{m}}$.
Sun.	19	3d Sunday after Trinity.	15. 23. - ☽ σ Ω.
M.	20	In 3 w. of H. Tr. 4 ret. Tra.	17. 4. - ♀ α Ω.
Tu.	21	[of Ed. K. of W. Sax.]	17. 16. - ☽ 1 γ $\overline{\text{m}}$.
W.	22	Trinity Term ends.	18. 10. - ♀ 1 δ 8.
Th.	23		18. 19. - ♀ 2 δ 8.
F.	24	Nativity of St. John Bapt.	19. 23. - ♀ ε 8.
Sa.	25		21. 10. - ☽ γ $\overline{\text{m}}$.
			21. 17. 38 ☽ enters $\overline{\text{m}}$.
Sun.	26	4th Sunday after Trinity.	21. 21. - ☽ ψ $\overline{\text{m}}$.
M.	27		22. 14. - ☽ φ Oph.
Tu.	28		25. 21. - ☽ d 7.
W.	29	St. Peter.	27. 6. - ♀ i 8.
Th.	30		28. 4. - ☽ η.
			28. 20. - ☽ ♃.
			29. 22. - ♂ δ $\overline{\text{m}}$.
			30. 3. - ☽ λ $\overline{\text{m}}$.
			30. 13. - ☽ φ $\overline{\text{m}}$.

Days of the Week.	Days of the Month.	THE SUN'S			Diff.	Equation of Time.	Diff.
		Longitude.	Rt. Ascen. in Time.	Declin. North.		Sub. from app. Time.	
		S. D. M. S.	H. M. S.	D. M. S.	M. S.	M. S.	S.
W.	1	2. 10. 11. 4	4. 34. 13. 2	21. 59. 42		2. 38, 9	
Th.	2	2. 11. 8. 31	4. 38. 18. 7	22. 7. 52	8. 10	2. 30, 0	8, 9
F.	3	2. 12. 5. 57	4. 42. 24. 5	22. 15. 40	7. 48	2. 20, 8	9, 2
Sa.	4	2. 13. 3. 22	4. 46. 30. 8	22. 23. 3	7. 23	2. 11, 1	9, 7
Sun.	5	2. 14. 0. 47	4. 50. 37. 4	22. 30. 4	7. 1	2. 1, 0	10, 1
					6. 37		10, 4
M.	6	2. 14. 58. 12	4. 54. 44. 4	22. 36. 41		1. 50, 6	
Tu.	7	2. 15. 55. 36	4. 58. 51. 8	22. 42. 54	6. 13	1. 39, 9	10, 7
W.	8	2. 16. 53. 0	5. 2. 59. 4	22. 48. 44	5. 50	1. 28, 8	11, 1
Th.	9	2. 17. 50. 23	5. 7. 7. 4	22. 54. 9	5. 25	1. 17, 4	11, 4
F.	10	2. 18. 47. 45	5. 11. 15. 7	22. 59. 11	5. 2	1. 5, 7	11, 7
					4. 37		11, 9
Sa.	11	2. 19. 45. 7	5. 15. 24. 2	23. 3. 48		0. 53, 8	
Sun.	12	2. 20. 42. 27	5. 19. 32. 9	23. 8. 0	4. 12	0. 41, 7	12, 1
M.	13	2. 21. 39. 47	5. 23. 41. 7	23. 11. 49	3. 49	0. 29, 4	12, 3
Tu.	14	2. 22. 37. 7	5. 27. 50. 8	23. 15. 12	3. 23	0. 16, 9	12, 5
W.	15	2. 23. 34. 25	5. 32. 0. 0	23. 18. 11	2. 59	0. 4, 3	12, 6
					2. 35		12, 7
Th.	16	2. 24. 31. 42	5. 36. 9. 3	23. 20. 46		Add. 0. 8, 4	
F.	17	2. 25. 28. 58	5. 40. 18. 7	23. 22. 56	2. 10	0. 21, 2	12, 8
Sa.	18	2. 26. 26. 14	5. 44. 28. 1	23. 24. 41	1. 45	0. 34, 0	12, 8
Sun.	19	2. 27. 23. 29	5. 48. 37. 6	23. 26. 1	1. 20	0. 46, 9	12, 9
M.	20	2. 28. 20. 43	5. 52. 47. 1	23. 26. 56	0. 55	0. 59, 8	12, 9
					0. 31		13, 0
Tu.	21	2. 29. 17. 57	5. 56. 56. 6	23. 27. 27		1. 12, 8	
W.	22	3. 0. 15. 10	6. 1. 6. 1	23. 27. 33	0. 6	1. 25, 7	12, 9
Th.	23	3. 1. 12. 23	6. 5. 15. 6	23. 27. 14	0. 19	1. 38, 5	12, 8
F.	24	3. 2. 9. 35	6. 9. 25. 0	23. 26. 30	0. 44	1. 51, 3	12, 8
Sa.	25	3. 3. 6. 47	6. 13. 34. 3	23. 25. 22	1. 8	2. 4, 0	12, 7
					1. 34		12, 6
Sun.	26	3. 4. 3. 58	6. 17. 43. 5	23. 23. 48		2. 16, 6	
M.	27	3. 5. 1. 9	6. 21. 52. 5	23. 21. 50	1. 58	2. 29, 1	12, 5
Tu.	28	3. 5. 58. 21	6. 26. 1. 5	23. 19. 28	2. 22	2. 41, 4	12, 3
W.	29	3. 6. 55. 32	6. 30. 10. 3	23. 16. 41	2. 47	2. 53, 6	12, 2
Th.	30	3. 7. 52. 44	6. 34. 18. 9	23. 13. 29	3. 12	3. 5, 7	12, 1
					3. 35		11, 8

Days	Time of ☉'s Semidiam. passing Merid.	THE SUN'S			Place of the ☉'s Node.
		Semi- diameter.	Hourly Motion.	Logar. Distance.	
	M. S.	M. S.	M. S.		S. D. M.
1	1. 8, 1	15. 47, 6	2. 23, 6	0. 006234	4. 25. 40
7	1. 8, 3	15. 46, 9	2. 23, 4	0. 006589	4. 25. 21
13	1. 8, 5	15. 46, 3	2. 23, 2	0. 006856	4. 25. 2
19	1. 8, 6	15. 45, 9	2. 23, 1	0. 007037	4. 24. 43
25	1. 8, 6	15. 45, 6	2. 23, 0	0. 007154	4. 24. 24

ECLIPSES OF THE SATELLITES OF JUPITER.
MEAN TIME.

I. Satellite.		II. Satellite.		III. Satellite.	
<i>Immersion.</i>		<i>Immersion.</i>			
Days.	H. M. S.	Days.	H. M. S.	Days.	H. M. S.
* 2	14. 8. 45	3	1. 5. 44	5	17. 30. 35 Im.
4	8. 37. 9	* 6	14. 23. 10	5	21. 4. 12 E.
6	3. 5. 38	10	3. 40. 53	12	21. 29. 59 Im.
7	21. 34. 2	13	16. 58. 19	13	1. 3. 42 E.
9	16. 2. 32	17	6. 15. 57	20	1. 29. 29 Im.
11	10. 30. 57	20	19. 33. 22	20	5. 3. 17 E.
13	4. 59. 26	24	8. 50. 56	27	5. 29. 10 Im.
14	23. 27. 52	27	22. 8. 20	27	9. 3. 4 E.
16	17. 56. 23				
* 18	12. 24. 49				
20	6. 53. 21				
22	1. 21. 46				
23	19. 50. 20				
* 25	14. 18. 47				
27	8. 47. 21				
29	3. 15. 49				
30	21. 44. 23				
				IV. Satellite.	
				4	7. 10. 27 Im.
				4	11. 48. 38 E.
				21	1. 17. 43 Im.
				21	5. 57. 49 E.

THE PLANETS'								
Days	Heliocentric		Geocentric		Declin.	Rt. Asc.	Passage	
	Long.	Lat.	Long.	Lat.		in Time.	Merid.	
	S. D. M.	D. M.	S. D. M.	D. M.	D. M.	H. M.	H. M.	
♿ MERCURY. Gr. Elong. 20 ^d .								
1	8. 20. 54	3. 59 S	2. 1. 22	3. 17 S	17. 15 N	4. 0	23. 21	
4	8. 29. 14	4. 47	2. 0. 23	3. 46	16. 34	3. 56	23. 5	
7	9. 7. 44	5. 29	2. 0. 0	4. 3	16. 12	3. 55	22. 52	
10	9. 16. 32	6. 5	2. 0. 16	4. 10	16. 9	3. 56	22. 42	
13	9. 25. 42	6. 33	2. 1. 13	4. 6	16. 24	4. 0	22. 34	
16	10. 5. 23	6. 52	2. 2. 50	3. 54	16. 55	4. 6	22. 29	
19	10. 15. 42	7. 0	2. 5. 5	3. 34	17. 39	4. 15	22. 26	
22	10. 26. 49	6. 53	2. 7. 57	3. 9	18. 33	4. 27	22. 26	
25	11. 8. 53	6. 28	2. 11. 23	2. 38	19. 33	4. 41	22. 29	
28	11. 22. 4	5. 41	2. 15. 23	2. 4	20. 36	4. 57	22. 33	
30	0. 1. 33	4. 57	2. 18. 21	1. 40	21. 17	5. 10	22. 38	
♀ VENUS.								
1	5. 18. 57	3. 23 N	3. 18. 18	2. 7 N	24. 18 N	7. 21	2. 46	
7	5. 28. 41	3. 18	3. 25. 14	2. 9	23. 13	7. 50	2. 52	
13	6. 8. 23	3. 7	4. 2. 6	2. 7	21. 46	8. 20	2. 56	
19	6. 18. 4	2. 51	4. 8. 54	2. 1	20. 0	8. 48	2. 59	
25	6. 27. 43	2. 30	4. 15. 37	1. 51	17. 57	9. 15	3. 1	
♂ MARS.								
1	4. 10. 11	1. 50 N	3. 18. 3	1. 18 N	23. 32 N	7. 19	2. 45	
7	4. 12. 50	1. 51	3. 21. 47	1. 17	22. 58	7. 35	2. 36	
13	4. 15. 29	1. 51	3. 25. 32	1. 17	22. 18	7. 51	2. 27	
19	4. 18. 8	1. 51	3. 29. 16	1. 16	21. 33	8. 7	2. 18	
25	4. 20. 46	1. 51	4. 3. 1	1. 15	20. 43	8. 22	2. 9	
♃ JUPITER.								
1	10. 11. 13	0. 42 S	10. 22. 12	0. 46 S	14. 51 S	21. 39	17. 2	
7	10. 11. 45	0. 43	10. 22. 20	0. 48	14. 50	21. 40	16. 38	
13	10. 12. 16	0. 44	10. 22. 21	0. 49	14. 51	21. 40	16. 13	
19	10. 12. 48	0. 44	10. 22. 15	0. 51	14. 54	21. 40	15. 48	
25	10. 13. 20	0. 45	10. 22. 2	0. 52	15. 0	21. 39	15. 22	
♄ SATURN.								
1	5. 2. 5	1. 36 N	4. 26. 0	1. 34 N	14. 20 N	9. 55	5. 20	
7	5. 2. 18	1. 37	4. 26. 23	1. 34	14. 12	9. 57	4. 57	
13	5. 2. 31	1. 37	4. 26. 48	1. 33	14. 3	9. 58	4. 34	
19	5. 2. 43	1. 37	4. 27. 17	1. 33	13. 53	10. 0	4. 11	
25	5. 2. 56	1. 38	4. 27. 48	1. 32	13. 41	10. 2	3. 48	
♅ GEORGIAN.								
1	10. 11. 48	0. 40 S	10. 14. 26	0. 41 S	17. 10 S	21. 8	16. 31	
11	10. 11. 54	0. 40	10. 14. 17	0. 41	17. 13	21. 8	15. 50	
21	10. 12. 1	0. 40	10. 14. 4	0. 41	17. 17	21. 7	15. 7	

Days of the Week.	Days of the Month.	THE MOON'S			
		Longitude.		Latitude.	
		Noon.	Midnight.	Noon.	Midnight.
		S. D. M. S.	S. D. M. S.	D. M. S.	D. M. S.
W.	1	10. 14. 53. 2	10. 21. 8. 57	0. 51. 22 N	0. 18. 20 N
Th.	2	10. 27. 29. 9	11. 3. 54. 10	0. 15. 18 S	0. 49. 11 S
F.	3	11. 10. 24. 34	11. 17. 0. 48	1. 22. 55	1. 56. 3
Sa.	4	11. 23. 43. 18	0. 0. 32. 26	2. 28. 6	2. 58. 34
Sun.	5	0. 7. 28. 27	0. 14. 31. 26	3. 26. 55	3. 52. 36
M.	6	0. 21. 41. 18	0. 28. 57. 48	4. 15. 3	4. 33. 43
Tu.	7	1. 6. 20. 27	1. 13. 48. 32	4. 48. 7	4. 57. 48
W.	8	1. 21. 21. 6	1. 28. 57. 0	5. 2. 25	5. 1. 46
Th.	9	2. 6. 35. 0	2. 14. 13. 41	4. 55. 45	4. 44. 26
F.	10	2. 21. 51. 36	2. 29. 27. 22	4. 28. 3	4. 6. 59
Sa.	11	3. 6. 59. 41	3. 14. 27. 23	3. 41. 43	3. 12. 52
Sun.	12	3. 21. 49. 32	3. 29. 5. 21	2. 41. 5	2. 7. 5
M.	13	4. 6. 14. 20	4. 13. 16. 14	1. 31. 33	0. 55. 9 S
Tu.	14	4. 20. 10. 56	4. 26. 58. 29	0. 18. 31 S	0. 17. 47 N
W.	15	5. 3. 39. 10	5. 10. 13. 18	0. 53. 16 N	1. 27. 28
Th.	16	5. 16. 41. 22	5. 23. 3. 51	2. 0. 0	2. 30. 34
F.	17	5. 29. 21. 17	6. 5. 34. 17	2. 58. 54	3. 24. 45
Sa.	18	6. 11. 43. 22	6. 17. 49. 8	3. 47. 57	4. 8. 19
Sun.	19	6. 23. 52. 7	6. 29. 52. 50	4. 25. 43	4. 40. 4
M.	20	7. 5. 51. 49	7. 11. 49. 29	4. 51. 15	4. 59. 14
Tu.	21	7. 17. 46. 14	7. 23. 42. 27	5. 3. 56	5. 5. 21
W.	22	7. 29. 38. 28	8. 5. 34. 36	5. 3. 29	4. 58. 19
Th.	23	8. 11. 31. 6	8. 17. 28. 12	4. 49. 55	4. 38. 21
F.	24	8. 23. 26. 7	8. 29. 25. 3	4. 23. 42	4. 6. 5
Sa.	25	9. 5. 25. 10	9. 11. 26. 40	3. 45. 40	3. 22. 37
Sun.	26	9. 17. 29. 42	9. 23. 34. 30	2. 57. 9	2. 29. 32
M.	27	9. 29. 41. 15	10. 5. 50. 10	1. 59. 59	1. 28. 49
Tu.	28	10. 12. 1. 32	10. 18. 15. 38	0. 56. 22 N	0. 22. 58 N
W.	29	10. 24. 32. 45	11. 0. 53. 13	0. 11. 1 S	0. 45. 13 S
Th.	30	11. 7. 17. 23	11. 13. 45. 38	1. 19. 12	1. 52. 32

Days of the Month.		THE MOON'S					
		Age.	Pass. Mer.	Right Ascension.		Declination.	
				Noon.	Midnight.	Noon.	Midnight.
				D. M. S.	D. M. S.	D. M. S.	D. M. S.
1	22		17. 7	317. 5. 35	323. 26. 18	15. 33. 54 S	14. 10. 18 S
2	23		17. 56	329. 46. 25	336. 6. 24	12. 35. 43	10. 50. 58
3	24		18. 44	342. 26. 55	348. 48. 48	8. 56. 59	6. 54. 49
4	25		19. 33	355. 13. 4	1. 40. 53	4. 45. 40	2. 30. 54 S
5	26		20. 24	8. 13. 30	14. 52. 12	0. 12. 0 S	2. 9. 15 N
6	27		21. 18	21. 38. 15	28. 32. 51	4. 30. 54 N	6. 50. 47
7	28		22. 14	35. 37. 1	42. 51. 28	9. 6. 27	11. 15. 20
8	29		23. 13	50. 16. 24	57. 51. 34	13. 14. 42	15. 1. 48
9	1	♂	0	65. 36. 2	73. 28. 10	16. 34. 2	17. 49. 4
10	2		0. 15	81. 25. 36	89. 25. 30	18. 44. 59	19. 20. 31
11	3		1. 17	97. 24. 40	105. 19. 49	19. 35. 4	19. 28. 43
12	4		2. 18	113. 7. 57	120. 46. 31	19. 2. 16	18. 17. 6
13	5		3. 16	128. 13. 37	135. 28. 7	17. 15. 2	15. 58. 8
14	6		4. 11	142. 29. 28	149. 17. 46	14. 28. 34	12. 48. 34
15	7		5. 1	155. 53. 40	162. 18. 7	11. 0. 13	9. 5. 27
16	8		5. 49	168. 32. 20	174. 37. 44	7. 6. 3	5. 3. 35
17	9		6. 34	180. 35. 47	186. 27. 58	2. 59. 30 N	0. 55. 5 N
18	10		7. 17	192. 15. 46	198. 0. 37	1. 8. 30 S	3. 10. 12 S
19	11		8. 0	203. 43. 53	209. 26. 52	5. 9. 1	7. 3. 59
20	12		8. 43	215. 10. 45	220. 56. 33	8. 54. 12	10. 38. 42
21	13		9. 27	226. 45. 11	232. 37. 24	12. 16. 35	13. 46. 56
22	14		10. 12	238. 33. 45	244. 34. 38	15. 8. 49	16. 21. 22
23	15		10. 58	250. 40. 11	256. 50. 20	17. 23. 42	18. 14. 57
24	16		11. 46	263. 4. 47	269. 23. 3	18. 54. 24	19. 21. 24
25	17		12. 34	275. 44. 28	282. 8. 15	19. 35. 25	19. 36. 4
26	18		13. 23	288. 33. 30	294. 59. 22	19. 23. 9	18. 56. 37
27	19		14. 12	301. 25. 2	307. 49. 47	18. 16. 40	17. 23. 36
28	20		15. 0	314. 13. 8	320. 34. 45	16. 17. 56	15. 0. 17
29	21		15. 48	326. 54. 33	333. 12. 44	13. 31. 28	11. 52. 22
30	22		16. 35	339. 29. 42	345. 46. 7	10. 3. 59	8. 7. 22

Days of the Week.	Days of the Month.	THE MOON's				Proportional Logarithm.	
		Semidiameter.		Hor. Parallax.			
		Noon.	Midnight.	Noon.	Midnight.		
		M. S.	M. S.	M. S.	M. S.	Noon.	Midn.
W.	1	15. 10	15. 16	55. 41	56. 0	5095	5071
Th.	2	15. 22	15. 28	56. 22	56. 44	5043	5014
F.	3	15. 34	15. 41	57. 8	57. 33	4984	4952
Sa.	4	15. 48	15. 55	57. 59	58. 26	4920	4886
Sun.	5	16. 3	16. 10	58. 53	59. 19	4853	4821
M.	6	16. 17	16. 23	59. 44	60. 8	4791	4762
Tu.	7	16. 29	16. 34	60. 29	60. 47	4736	4715
W.	8	16. 38	16. 40	61. 1	61. 11	4698	4686
Th.	9	16. 42	16. 42	61. 16	61. 16	4680	4680
F.	10	16. 40	16. 38	61. 11	61. 2	4686	4697
Sa.	11	16. 34	16. 29	60. 48	60. 30	4714	4735
Sun.	12	16. 23	16. 17	60. 9	59. 44	4760	4791
M.	13	16. 10	16. 2	59. 18	58. 50	4822	4856
Tu.	14	15. 54	15. 46	58. 21	57. 53	4892	4927
W.	15	15. 39	15. 31	57. 25	56. 57	4962	4998
Th.	16	15. 24	15. 18	56. 31	56. 7	5031	5062
F.	17	15. 12	15. 6	55. 45	55. 25	5090	5116
Sa.	18	15. 1	14. 57	55. 7	54. 52	5140	5160
Sun.	19	14. 53	14. 50	54. 38	54. 27	5178	5193
M.	20	14. 48	14. 46	54. 17	54. 10	5206	5215
Tu.	21	14. 44	14. 43	54. 5	54. 1	5222	5227
W.	22	14. 43	14. 43	53. 59	53. 59	5230	5230
Th.	23	14. 43	14. 44	54. 1	54. 4	5227	5223
F.	24	14. 45	14. 47	54. 8	54. 14	5218	5210
Sa.	25	14. 49	14. 51	54. 21	54. 29	5201	5190
Sun.	26	14. 53	14. 56	54. 38	54. 48	5178	5165
M.	27	14. 59	15. 3	55. 0	55. 13	5149	5132
Tu.	28	15. 6	15. 10	55. 26	55. 41	5115	5095
W.	29	15. 15	15. 19	55. 57	56. 14	5075	5053
Th.	30	15. 24	15. 29	56. 32	56. 50	5030	5007

Days of the Month.		THE MOON'S					
		Pass. Mer.	Right Ascension.		Declination.		
			Noon.	Midnight.	Noon.	Midnight.	
			D. M. S.	D. M. S.	D. M. S.	D. M. S.	
Age.	D.	H. M.					
1	22	17. 7	317. 5. 35	323. 26. 18	15. 33. 54 S	14. 10. 18 S	
2	23	17. 56	329. 46. 25	336. 6. 24	12. 35. 43	10. 50. 58	
3	24	18. 44	342. 26. 55	348. 48. 48	8. 56. 59	6. 54. 49	
4	25	19. 33	355. 13. 4	1. 40. 53	4. 45. 40	2. 30. 54 S	
5	26	20. 24	8. 13. 30	14. 52. 12	0. 12. 0 S	2. 9. 15 N	
6	27	21. 18	21. 38. 15	28. 32. 51	4. 30. 54 N	6. 50. 47	
7	28	22. 14	35. 37. 1	42. 51. 28	9. 6. 27	11. 15. 20	
8	29	23. 13	50. 16. 24	57. 51. 34	13. 14. 42	15. 1. 48	
9	1	♂	65. 36. 2	73. 28. 10	16. 34. 2	17. 49. 4	
10	2	0. 15	81. 25. 36	89. 25. 30	18. 44. 59	19. 20. 31	
11	3	1. 17	97. 24. 40	105. 19. 49	19. 35. 4	19. 28. 43	
12	4	2. 18	113. 7. 57	120. 46. 31	19. 2. 16	18. 17. 6	
13	5	3. 16	128. 13. 37	135. 28. 7	17. 15. 2	15. 58. 8	
14	6	4. 11	142. 29. 28	149. 17. 46	14. 28. 34	12. 48. 34	
15	7	5. 1	155. 53. 40	162. 18. 7	11. 0. 13	9. 5. 27	
16	8	5. 49	168. 32. 20	174. 37. 44	7. 6. 3	5. 3. 35	
17	9	6. 34	180. 35. 47	186. 27. 58	2. 59. 30 N	0. 55. 5 N	
18	10	7. 17	192. 15. 46	198. 0. 37	1. 8. 30 S	3. 10. 12 S	
19	11	8. 0	203. 43. 53	209. 26. 52	5. 9. 1	7. 3. 59	
20	12	8. 43	215. 10. 45	220. 56. 33	8. 54. 12	10. 38. 42	
21	13	9. 27	226. 45. 11	232. 37. 24	12. 16. 35	13. 46. 56	
22	14	10. 12	238. 33. 45	244. 34. 38	15. 8. 49	16. 21. 22	
23	15	10. 58	250. 40. 11	256. 50. 20	17. 23. 42	18. 14. 57	
24	16	11. 46	263. 4. 47	269. 23. 3	18. 54. 24	19. 21. 24	
25	17	12. 34	275. 44. 28	282. 8. 15	19. 35. 25	19. 36. 4	
26	18	13. 23	288. 33. 30	294. 59. 22	19. 23. 9	18. 56. 37	
27	19	14. 12	301. 25. 2	307. 49. 47	18. 16. 40	17. 23. 36	
28	20	15. 0	314. 13. 8	320. 34. 45	16. 17. 56	15. 0. 17	
29	21	15. 48	326. 54. 33	333. 12. 44	13. 31. 28	11. 52. 22	
30	22	16. 35	339. 29. 42	345. 46. 7	10. 3. 59	8. 7. 22	

Days of the Week.	Days of the Month.	THE MOON'S				Proportional Logarithm.	
		Semidiameter.		Hor. Parallax.			
		Noon.	Midnight.	Noon.	Midnight.		
		M. S.	M. S.	M. S.	M. S.	Noon.	Midn.
W.	1	15. 10	15. 16	55. 41	56. 0	5095	5071
Th.	2	15. 22	15. 28	56. 22	56. 44	5043	5014
F.	3	15. 34	15. 41	57. 8	57. 33	4984	4952
Sa.	4	15. 48	15. 55	57. 59	58. 26	4920	4886
Sun.	5	16. 3	16. 10	58. 53	59. 19	4853	4821
M.	6	16. 17	16. 23	59. 44	60. 8	4791	4762
Tu.	7	16. 29	16. 34	60. 29	60. 47	4736	4715
W.	8	16. 38	16. 40	61. 1	61. 11	4698	4686
Th.	9	16. 42	16. 42	61. 16	61. 16	4680	4680
F.	10	16. 40	16. 38	61. 11	61. 2	4686	4697
Sa.	11	16. 34	16. 29	60. 48	60. 30	4714	4735
Sun.	12	16. 23	16. 17	60. 9	59. 44	4760	4791
M.	13	16. 10	16. 2	59. 18	58. 50	4822	4856
Tu.	14	15. 54	15. 46	58. 21	57. 53	4892	4927
W.	15	15. 39	15. 31	57. 25	56. 57	4962	4998
Th.	16	15. 24	15. 18	56. 31	56. 7	5031	5062
F.	17	15. 12	15. 6	55. 45	55. 25	5090	5116
Sa.	18	15. 1	14. 57	55. 7	54. 52	5140	5160
Sun.	19	14. 53	14. 50	54. 38	54. 27	5178	5193
M.	20	14. 48	14. 46	54. 17	54. 10	5206	5215
Tu.	21	14. 44	14. 43	54. 5	54. 1	5222	5227
W.	22	14. 43	14. 43	53. 59	53. 59	5230	5230
Th.	23	14. 43	14. 44	54. 1	54. 4	5227	5223
F.	24	14. 45	14. 47	54. 8	54. 14	5218	5210
Sa.	25	14. 49	14. 51	54. 21	54. 29	5201	5190
Sun.	26	14. 53	14. 56	54. 38	54. 48	5178	5165
M.	27	14. 59	15. 3	55. 0	55. 13	5149	5132
Tu.	28	15. 6	15. 10	55. 26	55. 41	5115	5095
W.	29	15. 15	15. 19	55. 57	56. 14	5075	5053
Th.	30	15. 24	15. 29	56. 32	56. 50	5030	5007

Days of the Month.		THE MOON'S					
		Age.	Pass. Mer.	Right Ascension.		Declination.	
				Noon.	Midnight.	Noon.	Midnight.
				D. M. S.	D. M. S.	D. M. S.	D. M. S.
1	22		17. 7	317. 5. 35	323. 26. 18	15. 33. 54 S	14. 10. 18 S
2	23		17. 56	329. 46. 25	336. 6. 24	12. 35. 43	10. 50. 58
3	24		18. 44	342. 26. 55	348. 48. 48	8. 56. 59	6. 54. 49
4	25		19. 33	355. 13. 4	1. 40. 53	4. 45. 40	2. 30. 54 S
5	26		20. 24	8. 13. 30	14. 52. 12	0. 12. 0 S	2. 9. 15 N
6	27		21. 18	21. 38. 15	28. 32. 51	4. 30. 54 N	6. 50. 47
7	28		22. 14	35. 37. 1	42. 51. 28	9. 6. 27	11. 15. 20
8	29		23. 13	50. 16. 24	57. 51. 34	13. 14. 42	15. 1. 48
9	1	♂	♂	65. 36. 2	73. 28. 10	16. 34. 2	17. 49. 4
10	2		0. 15	81. 25. 36	89. 25. 30	18. 44. 59	19. 20. 31
11	3		1. 17	97. 24. 40	105. 19. 49	19. 35. 4	19. 28. 43
12	4		2. 18	113. 7. 57	120. 46. 31	19. 2. 16	18. 17. 6
13	5		3. 16	128. 13. 37	135. 28. 7	17. 15. 2	15. 58. 8
14	6		4. 11	142. 29. 28	149. 17. 46	14. 28. 34	12. 48. 34
15	7		5. 1	155. 53. 40	162. 18. 7	11. 0. 13	9. 5. 27
16	8		5. 49	168. 32. 20	174. 37. 44	7. 6. 3	5. 3. 35
17	9		6. 34	180. 35. 47	186. 27. 58	2. 59. 30 N	0. 55. 5 N
18	10		7. 17	192. 15. 46	198. 0. 37	1. 8. 30 S	3. 10. 12 S
19	11		8. 0	203. 43. 53	209. 26. 52	5. 9. 1	7. 3. 59
20	12		8. 43	215. 10. 45	220. 56. 33	8. 54. 12	10. 38. 42
21	13		9. 27	226. 45. 11	232. 37. 24	12. 16. 35	13. 46. 56
22	14		10. 12	238. 33. 45	244. 34. 38	15. 8. 49	16. 21. 22
23	15		10. 58	250. 40. 11	256. 50. 20	17. 23. 42	18. 14. 57
24	16		11. 46	263. 4. 47	269. 23. 3	18. 54. 24	19. 21. 24
25	17		12. 34	275. 44. 28	282. 8. 15	19. 35. 25	19. 36. 4
26	18		13. 23	288. 33. 30	294. 59. 22	19. 23. 9	18. 56. 37
27	19		14. 12	301. 25. 2	307. 49. 47	18. 16. 40	17. 23. 36
28	20		15. 0	314. 13. 8	320. 34. 45	16. 17. 56	15. 0. 17
29	21		15. 48	326. 54. 33	333. 12. 44	13. 31. 28	11. 52. 22
30	22		16. 35	339. 29. 42	345. 46. 7	10. 3. 59	8. 7. 22

Days of the Week.	Days of the Month.	THE MOON'S				Proportional Logarithm.	
		Semidiameter.		Hor. Parallax.			
		Noon.	Midnight.	Noon.	Midnight.		
		M. S.	M. S.	M. S.	M. S.	Noon.	Midn.
W.	1	15. 10	15. 16	55. 41	56. 0	5095	5071
Th.	2	15. 22	15. 28	56. 22	56. 44	5043	5014
F.	3	15. 34	15. 41	57. 8	57. 33	4984	4952
Sa.	4	15. 48	15. 55	57. 59	58. 26	4920	4886
Sun.	5	16. 3	16. 10	58. 53	59. 19	4853	4821
M.	6	16. 17	16. 23	59. 44	60. 8	4791	4762
Tu.	7	16. 29	16. 34	60. 29	60. 47	4736	4715
W.	8	16. 38	16. 40	61. 1	61. 11	4698	4686
Th.	9	16. 42	16. 42	61. 16	61. 16	4680	4680
F.	10	16. 40	16. 38	61. 11	61. 2	4686	4697
Sa.	11	16. 34	16. 29	60. 48	60. 30	4714	4735
Sun.	12	16. 23	16. 17	60. 9	59. 44	4760	4791
M.	13	16. 10	16. 2	59. 18	58. 50	4822	4856
Tu.	14	15. 54	15. 46	58. 21	57. 53	4892	4927
W.	15	15. 39	15. 31	57. 25	56. 57	4962	4998
Th.	16	15. 24	15. 18	56. 31	56. 7	5031	5062
F.	17	15. 12	15. 6	55. 45	55. 25	5090	5116
Sa.	18	15. 1	14. 57	55. 7	54. 52	5140	5160
Sun.	19	14. 53	14. 50	54. 38	54. 27	5178	5193
M.	20	14. 48	14. 46	54. 17	54. 10	5206	5215
Tu.	21	14. 44	14. 43	54. 5	54. 1	5222	5227
W.	22	14. 43	14. 43	53. 59	53. 59	5230	5230
Th.	23	14. 43	14. 44	54. 1	54. 4	5227	5223
F.	24	14. 45	14. 47	54. 8	54. 14	5218	5210
Sa.	25	14. 49	14. 51	54. 21	54. 29	5201	5190
Sun.	26	14. 53	14. 56	54. 38	54. 48	5178	5165
M.	27	14. 59	15. 3	55. 0	55. 13	5149	5132
Tu.	28	15. 6	15. 10	55. 26	55. 41	5115	5095
W.	29	15. 15	15. 19	55. 57	56. 14	5075	5053
Th.	30	15. 24	15. 29	56. 32	56. 50	5030	5007

Days of the Month.		THE MOON'S					
		Age.	Pass. Mer.	Right Ascension.		Declination.	
				Noon.	Midnight.	Noon.	Midnight.
				D. M. S.	D. M. S.	D. M. S.	D. M. S.
D.	H. M.	D. M. S.	D. M. S.	D. M. S.	D. M. S.		
1	22	17. 7	317. 5. 35	323. 26. 18	15. 33. 54 S	14. 10. 18 S	
2	23	17. 56	329. 46. 25	336. 6. 24	12. 35. 43	10. 50. 58	
3	24	18. 44	342. 26. 55	348. 48. 48	8. 56. 59	6. 54. 49	
4	25	19. 33	355. 13. 4	1. 40. 53	4. 45. 40	2. 30. 54 S	
5	26	20. 24	8. 13. 30	14. 52. 12	0. 12. 0 S	2. 9. 15 N	
6	27	21. 18	21. 38. 15	28. 32. 51	4. 30. 54 N	6. 50. 47	
7	28	22. 14	35. 37. 1	42. 51. 28	9. 6. 27	11. 15. 20	
8	29	23. 13	50. 16. 24	57. 51. 34	13. 14. 42	15. 1. 48	
9	1	♂	65. 36. 2	73. 28. 10	16. 34. 2	17. 49. 4	
10	2	0. 15	81. 25. 36	89. 25. 30	18. 44. 59	19. 20. 31	
11	3	1. 17	97. 24. 40	105. 19. 49	19. 35. 4	19. 28. 43	
12	4	2. 18	113. 7. 57	120. 46. 31	19. 2. 16	18. 17. 6	
13	5	3. 16	128. 13. 37	135. 28. 7	17. 15. 2	15. 58. 8	
14	6	4. 11	142. 29. 28	149. 17. 46	14. 28. 34	12. 48. 34	
15	7	5. 1	155. 53. 40	162. 18. 7	11. 0. 13	9. 5. 27	
16	8	5. 49	168. 32. 20	174. 37. 44	7. 6. 3	5. 3. 35	
17	9	6. 34	180. 35. 47	186. 27. 58	2. 59. 30 N	0. 55. 5 N	
18	10	7. 17	192. 15. 46	198. 0. 37	1. 8. 30 S	3. 10. 12 S	
19	11	8. 0	203. 43. 53	209. 26. 52	5. 9. 1	7. 3. 59	
20	12	8. 43	215. 10. 45	220. 56. 33	8. 54. 12	10. 38. 42	
21	13	9. 27	226. 45. 11	232. 37. 24	12. 16. 35	13. 46. 56	
22	14	10. 12	238. 33. 45	244. 34. 38	15. 8. 49	16. 21. 22	
23	15	10. 58	250. 40. 11	256. 50. 20	17. 23. 42	18. 14. 57	
24	16	11. 46	263. 4. 47	269. 23. 3	18. 54. 24	19. 21. 24	
25	17	12. 34	275. 44. 28	282. 8. 15	19. 35. 25	19. 36. 4	
26	18	13. 23	288. 33. 30	294. 59. 22	19. 23. 9	18. 56. 37	
27	19	14. 12	301. 25. 2	307. 49. 47	18. 16. 40	17. 23. 36	
28	20	15. 0	314. 13. 8	320. 34. 45	16. 17. 56	15. 0. 17	
29	21	15. 48	326. 54. 33	333. 12. 44	13. 31. 28	11. 52. 22	
30	22	16. 35	339. 29. 42	345. 46. 7	10. 3. 59	8. 7. 22	

Days of the Week.	Days of the Month.	THE MOON'S				Proportional Logarithm.	
		Semidiameter.		Hor. Parallax.			
		Noon.	Midnight.	Noon.	Midnight.		
		M. S.	M. S.	M. S.	M. S.	Noon.	Midn.
W.	1	15. 10	15. 16	55. 41	56. 0	5095	5071
Th.	2	15. 22	15. 28	56. 22	56. 44	5043	5014
F.	3	15. 34	15. 41	57. 8	57. 33	4984	4952
Sa.	4	15. 48	15. 55	57. 59	58. 26	4920	4886
Sun.	5	16. 3	16. 10	58. 53	59. 19	4853	4821
M.	6	16. 17	16. 23	59. 44	60. 8	4791	4762
Tu.	7	16. 29	16. 34	60. 29	60. 47	4736	4715
W.	8	16. 38	16. 40	61. 1	61. 11	4698	4686
Th.	9	16. 42	16. 42	61. 16	61. 16	4680	4680
F.	10	16. 40	16. 38	61. 11	61. 2	4686	4697
Sa.	11	16. 34	16. 29	60. 48	60. 30	4714	4735
Sun.	12	16. 23	16. 17	60. 9	59. 44	4760	4791
M.	13	16. 10	16. 2	59. 18	58. 50	4822	4856
Tu.	14	15. 54	15. 46	58. 21	57. 53	4892	4927
W.	15	15. 39	15. 31	57. 25	56. 57	4962	4998
Th.	16	15. 24	15. 18	56. 31	56. 7	5031	5062
F.	17	15. 12	15. 6	55. 45	55. 25	5090	5116
Sa.	18	15. 1	14. 57	55. 7	54. 52	5140	5160
Sun.	19	14. 53	14. 50	54. 38	54. 27	5178	5193
M.	20	14. 48	14. 46	54. 17	54. 10	5206	5215
Tu.	21	14. 44	14. 43	54. 5	54. 1	5222	5227
W.	22	14. 43	14. 43	53. 59	53. 59	5230	5230
Th.	23	14. 43	14. 44	54. 1	54. 4	5227	5223
F.	24	14. 45	14. 47	54. 8	54. 14	5218	5210
Sa.	25	14. 49	14. 51	54. 21	54. 29	5201	5190
Sun.	26	14. 53	14. 56	54. 38	54. 48	5178	5165
M.	27	14. 59	15. 3	55. 0	55. 13	5149	5132
Tu.	28	15. 6	15. 10	55. 26	55. 41	5115	5095
W.	29	15. 15	15. 19	55. 57	56. 14	5075	5053
Th.	30	15. 24	15. 29	56. 32	56. 50	5030	5007

Days of the Month.		THE MOON'S					
		Age.	Pass. Mer.	Right Ascension.		Declination.	
				Noon.	Midnight.	Noon.	Midnight.
				D. M. S.	D. M. S.	D. M. S.	D. M. S.
1	22		17. 7	317. 5. 35	323. 26. 18	15. 33. 54 S	14. 10. 18 S
2	23		17. 56	329. 46. 25	336. 6. 24	12. 35. 43	10. 50. 58
3	24		18. 44	342. 26. 55	348. 48. 48	8. 56. 59	6. 54. 49
4	25		19. 33	355. 13. 4	1. 40. 53	4. 45. 40	2. 30. 54 S
5	26		20. 24	8. 13. 30	14. 52. 12	0. 12. 0 S	2. 9. 15 N
6	27		21. 18	21. 38. 15	28. 32. 51	4. 30. 54 N	6. 50. 47
7	28		22. 14	35. 37. 1	42. 51. 28	9. 6. 27	11. 15. 20
8	29		23. 13	50. 16. 24	57. 51. 34	13. 14. 42	15. 1. 48
9	1	♂	0	65. 36. 2	73. 28. 10	16. 34. 2	17. 49. 4
10	2		0. 15	81. 25. 36	89. 25. 30	18. 44. 59	19. 20. 31
11	3		1. 17	97. 24. 40	105. 19. 49	19. 35. 4	19. 28. 43
12	4		2. 18	113. 7. 57	120. 46. 31	19. 2. 16	18. 17. 6
13	5		3. 16	128. 13. 37	135. 28. 7	17. 15. 2	15. 58. 8
14	6		4. 11	142. 29. 28	149. 17. 46	14. 28. 34	12. 48. 34
15	7		5. 1	155. 53. 40	162. 18. 7	11. 0. 13	9. 5. 27
16	8		5. 49	168. 32. 20	174. 37. 44	7. 6. 3	5. 3. 35
17	9		6. 34	180. 35. 47	186. 27. 58	2. 59. 30 N	0. 55. 5 N
18	10		7. 17	192. 15. 46	198. 0. 37	1. 8. 30 S	3. 10. 12 S
19	11		8. 0	203. 43. 53	209. 26. 52	5. 9. 1	7. 3. 59
20	12		8. 43	215. 10. 45	220. 56. 33	8. 54. 12	10. 38. 42
21	13		9. 27	226. 45. 11	232. 37. 24	12. 16. 35	13. 46. 56
22	14		10. 12	238. 33. 45	244. 34. 38	15. 8. 49	16. 21. 22
23	15		10. 58	250. 40. 11	256. 50. 20	17. 23. 42	18. 14. 57
24	16		11. 46	263. 4. 47	269. 23. 3	18. 54. 24	19. 21. 24
25	17		12. 34	275. 44. 28	282. 8. 15	19. 35. 25	19. 36. 4
26	18		13. 23	288. 33. 30	294. 59. 22	19. 23. 9	18. 56. 37
27	19		14. 12	301. 25. 2	307. 49. 47	18. 16. 40	17. 23. 36
28	20		15. 0	314. 13. 8	320. 34. 45	16. 17. 56	15. 0. 17
29	21		15. 48	326. 54. 33	333. 12. 44	13. 31. 28	11. 52. 22
30	22		16. 35	339. 29. 42	345. 46. 7	10. 3. 59	8. 7. 22

Days of the Week.	Days of the Month.	THE MOON'S				Proportional Logarithm.	
		Semidiameter.		Hor. Parallax.			
		Noon.	Midnight.	Noon.	Midnight.		
		M. S.	M. S.	M. S.	M. S.	Noon.	Midn.
W.	1	15. 10	15. 16	55. 41	56. 0	5095	5071
Th.	2	15. 22	15. 28	56. 22	56. 44	5043	5014
F.	3	15. 34	15. 41	57. 8	57. 33	4984	4952
Sa.	4	15. 48	15. 55	57. 59	58. 26	4920	4886
Sun.	5	16. 3	16. 10	58. 53	59. 19	4853	4821
M.	6	16. 17	16. 23	59. 44	60. 8	4791	4762
Tu.	7	16. 29	16. 34	60. 29	60. 47	4736	4715
W.	8	16. 38	16. 40	61. 1	61. 11	4698	4686
Th.	9	16. 42	16. 42	61. 16	61. 16	4680	4680
F.	10	16. 40	16. 38	61. 11	61. 2	4686	4697
Sa.	11	16. 34	16. 29	60. 48	60. 30	4714	4735
Sun.	12	16. 23	16. 17	60. 9	59. 44	4760	4791
M.	13	16. 10	16. 2	59. 18	58. 50	4822	4856
Tu.	14	15. 54	15. 46	58. 21	57. 53	4892	4927
W.	15	15. 39	15. 31	57. 25	56. 57	4962	4998
Th.	16	15. 24	15. 18	56. 31	56. 7	5031	5062
F.	17	15. 12	15. 6	55. 45	55. 25	5090	5116
Sa.	18	15. 1	14. 57	55. 7	54. 52	5140	5160
Sun.	19	14. 53	14. 50	54. 38	54. 27	5178	5193
M.	20	14. 48	14. 46	54. 17	54. 10	5206	5215
Tu.	21	14. 44	14. 43	54. 5	54. 1	5222	5227
W.	22	14. 43	14. 43	53. 59	53. 59	5230	5230
Th.	23	14. 43	14. 44	54. 1	54. 4	5227	5223
F.	24	14. 45	14. 47	54. 8	54. 14	5218	5210
Sa.	25	14. 49	14. 51	54. 21	54. 29	5201	5190
Sun.	26	14. 53	14. 56	54. 38	54. 48	5178	5165
M.	27	14. 59	15. 3	55. 0	55. 13	5149	5132
Tu.	28	15. 6	15. 10	55. 26	55. 41	5115	5095
W.	29	15. 15	15. 19	55. 57	56. 14	5075	5053
Th.	30	15. 24	15. 29	56. 32	56. 50	5030	5007

Stars' Names.	Days	Noon.	III ^b .	VI ^b .	IX ^b .	Midnight.	XV ^b .	XVIII ^b .	XXI ^b .
		D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.
α Aquilæ.	20 21 22	- - - 81. 59. 49 71. 31. 15 61. 16. 29	80. 40. 40 70. 13. 31 60. 0. 57	79. 21. 39 68. 56. 2 58. 45. 46	78. 2. 48 67. 38. 47 57. 30. 57	76. 44. 7 66. 21. 47 56. 16. 33	75. 25. 36 65. 5. 1 -	74. 7. 17 63. 48. 32 -	72. 49. 10 62. 32. 22 -
Fomalhaut.	22 23 24 25	- - - 82. 26. 19 71. 20. 0 60. 15. 51	- - - 81. 3. 1 69. 56. 47 58. 53. 14	- - - 79. 39. 43 68. 33. 36 57. 30. 44	- - - 78. 16. 24 67. 10. 28 56. 8. 24	87. 59. 24 76. 53. 6 65. 47. 23 54. 46. 12	86. 36. 9 75. 29. 48 64. 24. 22	85. 12. 53 74. 6. 31 63. 1. 26	83. 49. 37 72. 43. 15 61. 38. 35
α Pegasi.	25 26 27 28	- - - 64. 11. 43 53. 12. 0 42. 30. 33	- - - 62. 48. 45 51. 50. 25 -	- - - 61. 25. 54 50. 29. 10 -	- - - 60. 3. 10 49. 8. 16 -	69. 44. 11 58. 40. 34 47. 47. 46	68. 21. 1 57. 18. 7 46. 27. 42	66. 57. 52 55. 55. 51 45. 8. 7	65. 34. 46 54. 33. 48 43. 49. 3
α Arietis.	28 29 30 J. 1	83. 12. 51 71. 5. 23 58. 49. 30 46. 28. 48	81. 42. 26 69. 33. 49 57. 17. 3 -	80. 11. 51 68. 2. 7 55. 44. 31 -	78. 41. 7 66. 30. 17 54. 11. 57 -	77. 10. 16 64. 58. 21 52. 39. 20 -	75. 39. 15 63. 26. 17 51. 6. 42 -	74. 8. 6 61. 54. 7 49. 34. 3 -	72. 36. 49 60. 21. 51 48. 1. 25 -
The Sun.	30 J. 1	120. 34. 49 108. 30. 35	119. 5. 13 -	117. 35. 21 -	116. 5. 14 -	114. 34. 51 -	113. 4. 12 -	111. 33. 16 -	110. 2. 4 -

DISTANCES of the Moon's Centre from the Sun, and from STARS *WEST* of her.

Stars' Names.	Days	Noon.		III ^h .		VI ^h .		IX ^h .		Midnight.		XV ^h .		XVIII ^h .		XXI ^h .	
		D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.
Antares.	1	67.	37. 29	69.	9. 57	70.	42. 42	72.	15. 44	73.	49. 2	75.	22. 38	76.	56. 32	78.	30. 43
	2	80.	5. 13	81.	40. 1	83.	15. 9	84.	50. 35	86.	26. 21	88.	2. 27	89.	38. 53	91.	15. 39
	3	92.	52. 46	94.	30. 14	96.	8. 3	97.	46. 12	99.	24. 43	101.	3. 35	102.	42. 49	104.	22. 25
	4	106.	2. 23	-	-	-	-	-	-	-	-	-	-	-	-	-	-
α Aquilæ.	4	60.	51. 24	62.	18. 35	63.	46. 30	65.	15. 10	66.	44. 32	68.	14. 35	69.	45. 17	71.	16. 38
	5	72.	48. 35	74.	21. 7	75.	54. 13	77.	27. 52	79.	2. 1	-	-	-	-	-	-
Fomalhaut.	5	-	-	-	-	-	-	-	-	45.	12. 8	46.	45. 30	48.	19. 54	49.	55. 18
	6	51.	31. 38	53.	8. 52	54.	46. 57	56.	25. 49	58.	5. 27	59.	45. 47	61.	26. 46	63.	8. 21
The Sun.	7	64.	50. 30	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12	-	-	-	-	-	-	-	-	-	-	39.	37. 26	41.	17. 16	42.	56. 43
	13	44.	35. 47	46.	14. 28	47.	52. 46	49.	30. 39	51.	8. 8	52.	45. 12	54.	21. 50	55.	58. 3
	14	57.	33. 51	59.	9. 12	60.	44. 8	62.	18. 39	63.	52. 44	65.	26. 24	66.	59. 39	68.	32. 29
	15	70.	4. 54	71.	36. 54	73.	8. 29	74.	39. 43	76.	10. 31	77.	40. 56	79.	10. 59	80.	40. 39
	16	82.	9. 57	83.	38. 53	85.	7. 29	86.	35. 44	88.	3. 38	89.	31. 11	90.	58. 27	92.	25. 23
	17	93.	52. 0	95.	18. 20	96.	44. 23	98.	10. 9	99.	35. 39	101.	0. 52	102.	25. 51	103.	50. 35
	18	105.	15. 4	106.	39. 19	108.	3. 23	109.	27. 13	110.	50. 51	112.	14. 17	113.	37. 32	115.	0. 37
	19	116.	23. 31	117.	46. 15	119.	8. 51	120.	31. 19	-	-	-	-	-	-	-	-

[illegible]

CONFIGURATIONS of the SATELLITES of JUPITER,
at II o'Clock in the *Morning*.

1		3°	2°	○	1°	4°
2			3°	1°	○ 2°	
3				○ 3 6 1	2°	4°
4	1 ○		2°	○		3 6 4
5			2°	1° ○	4°	3°
6			4°	○	1° 3° 2°	
7		4°	3° 1°	○	2°	
8		4°	3° 2°	○	1°	
9	4°		3°	1° ○		2 ○
10	4°			○	1° 2°	3 ○
11		4°	2°	1° ○	3°	
12	1. ●		4°	2°	○	3°
13			4°	○	1° 2 6 3	
14			3 6 1	○	4° 2°	
15		3°	2°	○	1°	4°
16	2 ○		3°	1°	○	4°
17			3°	○	1° 2°	4°
18			1 6 2	○	3°	4°
19	1. ●		2°	○		3° 4°
20				○ 1°	2°	3° 4°
21			1 6 3	○	2° 4°	
22		3°	2°	○	1°	4 ●
23		3°	4°	1° 2°	○	
24		4°		3°	○	1° 2°
25		4°		1° 2°	○	3°
26	4°		2°	○	1°	3°
27	4°			○	2°	3° 1 ○
28		4°		1° 3°	○	2°
29			4 6 3	2°	○	1°
30		3°		1° 2 6 4	○	

Days of the Week.	Days of the Month.	<i>Sundays, and other remarkable Days.</i>	<i>Phases of the MOON.</i>
			D. H. M.
			☾ Last Quarter 2. 11. 40
			● New Moon 9. 1. 47
			☽ First Quarter . . . 16. 6. 3
			○ Full Moon 24. 9. 5
			☾ Last Quarter 31. 17. 41
			<i>Other Phenomena.</i>
			D. H. M.
F.	1		2. 12. - ☿ ♄ ♀.
Sa.	2	Visit. of B.V. Mary.	3. 10. - ☽ ♃ ♀.
Sun.	3	5th Sunday after Trinity.	4. 7. - ☽ 2 ♄ Ceti.
M.	4	Transl. of St. Martin.	4. 14. - ☽ μ Ceti.
Tu.	5	Oxf. Act and Camb. Com.	5. 9. - ☽ f ♀.
W.	6		5. 14. - ♀ α ♀.
Th.	7		6. 5. - ☽ γ ♀.
F.	8	Cambridge Term ends.	6. 6. - ☽ 1 ♄ ♀.
Sa.	9	Oxford Term ends.	6. 7. - ☽ 2 ♄ ♀.
Sun.	10	6th Sunday after Trinity.	6. 11. - ☽ α ♀.
M.	11		7. 7. - ☿ η ♀.
Tu.	12		7. 13. - ♀ h.
W.	13		8. 6. - ☿ μ ♀.
Th.	14		8. 6. - ☽ ν ♀.
F.	15	Swithin.	11. 18. - ♀ ε ♀.
Sa.	16		11. 22. - ☽ α ♀.
Sun.	17	7th Sunday after Trinity.	12. 2. - ☽ h.
M.	18		12. 9. - ☽ ε ♀.
Tu.	19	K. Geo. IV. crowned 1821.	12. 10. - ☽ ♀.
W.	20	Margaret.	13. 7. - ☽ σ ♀.
Th.	21		14. 15. - ☿ δ ♀.
F.	22	Magdalen.	14. 23. - ☽ 1 γ ♀.
Sa.	23		18. 16. - ☽ γ ♀.
Sun.	24	8th Sunday after Trinity.	19. 4. - ☽ ↓ ♀.
M.	25	St. James.	19. 20. - ☽ φ Oph.
Tu.	26	St. Anne.	23. 3. - ☽ d ♀.
W.	27		23. 4. 28 ☽ enters ♀.
Th.	28		25. 21. - ☽ η.
F.	29		26. 14. - ♀ τ ♀.
Sa.	30		27. 8. - ☽ λ ♀.
Sun.	31	9th Sunday after Trinity.	27. 19. - ☽ φ ♀.
			30. 16. - ☽ ν ♀.
			31. 13. - ☽ 2 ♄ Ceti.
			31. 20. - ☽ μ Ceti.

Days of the Week.	Days of the Month.	THE SUN'S			Diff.	Equation of Time. <i>Add to app. Time.</i>	Diff.
		Longitude.	Rt. Ascen. <i>in Time.</i>	Declin. <i>North.</i>			
		S. D. M. S.	H. M. S.	D. M. S.	M. S.	M. S.	S.
F.	1	3. 8. 49. 55	6. 38. 27. 3	23. 9. 54		3. 17. 5	11, 6
Sa.	2	3. 9. 47. 7	6. 42. 35. 5	23. 5. 53	4. 1	3. 29. 1	11, 4
Sun.	3	3. 10. 44. 20	6. 46. 43. 4	23. 1. 29	4. 24	3. 40. 5	11, 1
M.	4	3. 11. 41. 33	6. 50. 51. 1	22. 56. 40	4. 49	3. 51. 6	10, 8
Tu.	5	3. 12. 38. 46	6. 54. 58. 6	22. 51. 27	5. 13	4. 2. 4	10, 6
					5. 36		
W.	6	3. 13. 35. 59	6. 59. 5. 7	22. 45. 51		4. 13. 0	10, 2
Th.	7	3. 14. 33. 13	7. 3. 12. 5	22. 39. 50	6. 1	4. 23. 2	9, 9
F.	8	3. 15. 30. 28	7. 7. 19. 0	22. 33. 26	6. 24	4. 33. 1	9, 5
Sa.	9	3. 16. 27. 42	7. 11. 25. 0	22. 26. 39	6. 47	4. 42. 6	9, 1
Sun.	10	3. 17. 24. 57	7. 15. 30. 7	22. 19. 28	7. 11	4. 51. 7	8, 6
					7. 34		
M.	11	3. 18. 22. 12	7. 19. 36. 0	22. 11. 54		5. 0. 3	8, 3
Tu.	12	3. 19. 19. 27	7. 23. 40. 8	22. 3. 57	7. 57	5. 8. 6	7, 8
W.	13	3. 20. 16. 42	7. 27. 45. 2	21. 55. 37	8. 20	5. 16. 4	7, 2
Th.	14	3. 21. 13. 56	7. 31. 49. 0	21. 46. 55	8. 42	5. 23. 6	6, 8
F.	15	3. 22. 11. 11	7. 35. 52. 4	21. 37. 51	9. 4	5. 30. 4	6, 3
					9. 27		
Sa.	16	3. 23. 8. 27	7. 39. 55. 2	21. 28. 24		5. 36. 7	5, 8
Sun.	17	3. 24. 5. 42	7. 43. 57. 6	21. 18. 36	9. 48	5. 42. 5	5, 2
M.	18	3. 25. 2. 58	7. 47. 59. 4	21. 8. 26	10. 10	5. 47. 7	4, 7
Tu.	19	3. 26. 0. 13	7. 52. 0. 6	20. 57. 54	10. 32	5. 52. 4	4, 1
W.	20	3. 26. 57. 29	7. 56. 1. 3	20. 47. 1	10. 53	5. 56. 5	3, 6
					11. 13		
Th.	21	3. 27. 54. 46	8. 0. 1. 4	20. 35. 48		6. 0. 1	3, 0
F.	22	3. 28. 52. 2	8. 4. 1. 0	20. 24. 13	11. 35	6. 3. 1	2, 4
Sa.	23	3. 29. 49. 19	8. 8. 0. 0	20. 12. 18	11. 55	6. 5. 5	1, 8
Sun.	24	4. 0. 46. 37	8. 11. 58. 3	20. 0. 3	12. 15	6. 7. 3	1, 3
M.	25	4. 1. 43. 55	8. 15. 56. 2	19. 47. 28	12. 35	6. 8. 6	0, 6
					12. 55		
Tu.	26	4. 2. 41. 14	8. 19. 53. 4	19. 34. 33		6. 9. 2	0, 1
W.	27	4. 3. 38. 34	8. 23. 50. 0	19. 21. 18	13. 15	6. 9. 3	0, 5
Th.	28	4. 4. 35. 54	8. 27. 46. 1	19. 7. 44	13. 34	6. 8. 8	1, 1
F.	29	4. 5. 33. 16	8. 31. 41. 6	18. 53. 52	13. 52	6. 7. 7	1, 6
Sa.	30	4. 6. 30. 39	8. 35. 36. 5	18. 39. 40	14. 12	6. 6. 1	2, 2
					14. 30		
Sun.	31	4. 7. 28. 3	8. 39. 30. 8	18. 25. 10	14. 48	6. 3. 9	2, 8

Days	Time of ☉'s Semidiam. passing Merid.	THE SUN'S			Place of the ☉'s Node.
	M. S.	Semi- diameter.	Hourly Motion.	Logar. Distance.	S. D. M.
1	1. 8, 5	15. 45, 5	2. 33, 0	0. 007218	4. 24. 5
7	1. 8, 3	15. 45, 5	2. 23, 0	0. 007214	4. 23. 46
13	1. 8, 0	15. 45, 8	2. 23, 1	0. 007117	4. 23. 27
19	1. 7, 5	15. 46, 1	2. 23, 2	0. 006932	4. 23. 8
25	1. 7, 0	15. 46, 6	2. 23, 3	0. 006687	4. 22. 49

ECLIPSES OF THE SATELLITES OF JUPITER.
MEAN TIME.

I. Satellite.		II. Satellite.		III. Satellite.	
<i>Immersion.</i>		<i>Immersion.</i>			
Days.	H. M. S.	Days.	H. M. S.	Days.	H. M. S.
2	16. 12. 53	* 1	11. 25. 52	4	9. 29. 36 Im.
4	10. 41. 27	5	0. 43. 14	● 4	13. 3. 32 E.
6	5. 9. 58	* 8	14. 0. 44	* 11	13. 29. 48 Im.
7	23. 38. 34	12	3. 18. 5	● 11	17. 3. 47 E.
9	18. 7. 6	15	16. 35. 32	18	17. 30. 36 Im.
* 11	12. 35. 42	19	5. 52. 56	● 18	21. 4. 36 E.
13	7. 4. 15	22	19. 10. 21	25	21. 30. 53 Im.
15	1. 32. 52	26	8. 27. 47	● 26	1. 4. 53 E.
16	20. 1. 26	29	21. 45. 10		
* 18	14. 30. 5				
20	8. 58. 39				
22	3. 27. 19				
23	21. 55. 55				
25	16. 24. 35				
* 27	10. 53. 12				
29	5. 21. 54				
30	23. 50. 32				
				IV. Satellite.	
				7	19. 25. 3 Im.
				8	0. 6. 40 E.
				* 24	13. 33. 19 Im.
				● 24	18. 16. 10 E.

Days	THE PLANETS'							
	Heliocentric		Geocentric		Declin.	Rt. Asc.	Passage	
	Long.	Lat.	Long.	Lat.		in Time.	Merid.	
	S. D. M.	D. M.	S. D. M.	D. M.	D. M.	H. M.	H. M.	
♿ MERCURY. Sup. ♄ 19 ^d . 12 ^h .								
1	0. 6. 31	4. 30 S	2. 19. 55	1. 28 S	21. 37 N	5. 17	22. 41	
4	0. 22. 19	2. 52	2. 24. 58	0. 50	22. 32	5. 38	22. 51	
7	1. 9. 27	0. 51 S	3. 0. 29	0. 14 S	23. 14	6. 2	23. 3	
10	1. 27. 39	1. 23 N	3. 6. 25	0. 21 N	23. 39	6. 28	23. 17	
13	2. 16. 30	3. 32	3. 12. 38	0. 51	23. 42	6. 55	23. 33	
16	3. 5. 21	5. 18	3. 19. 1	1. 15	23. 21	7. 23	23. 48	
19	3. 23. 35	6. 28	3. 25. 26	1. 33	22. 35	7. 51	(24. 4)	
22	4. 10. 40	6. 58	4. 1. 45	1. 43	21. 28	8. 18	0. 14	
25	4. 26. 22	6. 54	4. 7. 55	1. 47	20. 2	8. 43	0. 27	
28	5. 10. 38	6. 23	4. 13. 52	1. 45	18. 22	9. 7	0. 40	
31	5. 23. 34	5. 35	4. 19. 34	1. 38	16. 30	9. 30	0. 51	
♀ VENUS. Gr. Elong. 30 ^d .								
1	7. 7. 21	2. 5 N	4. 22. 14	1. 38 N	15. 39 N	9. 41	3. 2	
7	7. 16. 57	1. 36	4. 28. 44	1. 19	13. 10	10. 5	3. 2	
13	7. 26. 32	1. 5	5. 5. 7	0. 57	10. 32	10. 29	3. 1	
19	8. 6. 5	0. 32 N	5. 11. 21	0. 30 N	7. 47	10. 52	3. 0	
25	8. 15. 36	0. 2 S	5. 17. 23	0. 2 S	4. 58	11. 14	2. 57	
♂ MARS.								
1	4. 23. 24	1. 51 N	4. 6. 46	1. 14 N	19. 47 N	8. 38	1. 59	
7	4. 26. 1	1. 50	4. 10. 31	1. 13	18. 47	8. 53	1. 50	
13	4. 28. 39	1. 49	4. 14. 16	1. 12	17. 42	9. 8	1. 41	
19	5. 1. 16	1. 48	4. 18. 2	1. 10	16. 33	9. 23	1. 31	
25	5. 3. 53	1. 47	4. 21. 48	1. 9	15. 20	9. 38	1. 22	
♃ JUPITER.								
1	10. 13. 51	0. 45 S	10. 21. 43	0. 54 S	15. 8 S	21. 38	14. 56	
7	10. 14. 23	0. 46	10. 21. 17	0. 55	15. 18	21. 36	14. 30	
13	10. 14. 54	0. 47	10. 20. 46	0. 57	15. 29	21. 34	14. 4	
19	10. 15. 26	0. 47	10. 20. 9	0. 58	15. 42	21. 32	13. 37	
25	10. 15. 58	0. 48	10. 19. 29	0. 59	15. 56	21. 29	13. 11	
♄ SATURN.								
1	5. 3. 9	1. 38 N	4. 28. 22	1. 32 N	13. 29 N	10. 4	3. 25	
7	5. 3. 22	1. 39	4. 28. 58	1. 32	13. 17	10. 7	3. 3	
13	5. 3. 34	1. 39	4. 29. 36	1. 31	13. 3	10. 9	2. 41	
19	5. 3. 47	1. 39	5. 0. 15	1. 31	12. 49	10. 12	2. 19	
25	5. 4. 0	1. 40	5. 0. 56	1. 31	12. 34	10. 14	1. 58	
♅ GEORGIAN.								
1	10. 12. 7	0. 40 S	10. 13. 48	0. 41 S	17. 22 S	21. 6	14. 25	
11	10. 12. 14	0. 40	10. 13. 28	0. 42	17. 27	21. 5	13. 43	
21	10. 12. 20	0. 40	10. 13. 8	0. 42	17. 34	21. 3	13. 1	

Days of the Week.	Days of the Month.	THE MOON'S							
		Longitude.				Latitude.			
		Noon.		Midnight.		Noon.		Midnight.	
		S. D. M. S.	S. D. M. S.	S. D. M. S.	S. D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.
F.	1	11. 20. 18. 19	11. 26. 55. 45	2. 24. 48 S	2. 55. 31 S				
Sa.	2	0. 3. 38. 16	0. 10. 26. 7	3. 24. 14	3. 50. 28				
Sun.	3	0. 17. 19. 31	0. 24. 18. 31	4. 13. 43	4. 33. 32				
M.	4	1. 1. 23. 8	1. 8. 33. 12	4. 49. 28	5. 1. 6				
Tu.	5	1. 15. 48. 22	1. 23. 8. 12	5. 8. 5	5. 10. 8				
W.	6	2. 0. 32. 3	2. 7. 59. 5	5. 7. 4	4. 58. 49				
Th.	7	2. 15. 28. 22	2. 22. 58. 48	4. 45. 25	4. 27. 4				
F.	8	3. 0. 29. 17	3. 7. 58. 39	4. 4. 7	3. 37. 0				
Sa.	9	3. 15. 25. 44	3. 22. 49. 29	3. 6. 17	2. 32. 37				
Sun.	10	4. 0. 8. 57	4. 7. 23. 20	1. 56. 42	1. 19. 17				
M.	11	4. 14. 31. 58	4. 21. 34. 23	0. 41. 3 S	0. 2. 43 S				
Tu.	12	4. 28. 30. 20	5. 5. 19. 43	0. 35. 7 N	1. 11. 52 N				
W.	13	5. 12. 2. 31	5. 18. 38. 55	1. 47. 3	2. 20. 13				
Th.	14	5. 25. 9. 12	6. 1. 33. 46	2. 51. 5	3. 19. 19				
F.	15	6. 7. 53. 3	6. 14. 7. 33	3. 44. 44	4. 7. 8				
Sa.	16	6. 20. 17. 48	6. 26. 24. 23	4. 26. 24	4. 42. 25				
Sun.	17	7. 2. 27. 51	7. 8. 28. 46	4. 55. 9	5. 4. 32				
M.	18	7. 14. 27. 42	7. 20. 25. 13	5. 10. 33	5. 13. 11				
Tu.	19	7. 26. 21. 46	8. 2. 17. 55	5. 12. 27	5. 8. 21				
W.	20	8. 8. 14. 5	8. 14. 10. 43	5. 0. 58	4. 50. 20				
Th.	21	8. 20. 8. 10	8. 26. 6. 49	4. 36. 31	4. 19. 39				
F.	22	9. 2. 6. 59	9. 8. 8. 56	3. 59. 50	3. 37. 15				
Sa.	23	9. 14. 12. 54	9. 20. 19. 8	3. 12. 4	2. 44. 31				
Sun.	24	9. 26. 27. 46	10. 2. 38. 59	2. 14. 51	1. 43. 23				
M.	25	10. 8. 52. 56	10. 15. 9. 43	1. 10. 25	0. 36. 19 N				
Tu.	26	10. 21. 29. 29	10. 27. 52. 19	0. 1. 29 N	0. 33. 40 S				
W.	27	11. 4. 18. 19	11. 10. 47. 37	1. 8. 42 S	1. 43. 10				
Th.	28	11. 17. 20. 17	11. 23. 56. 27	2. 16. 35	2. 48. 29				
F.	29	0. 0. 36. 12	0. 7. 19. 38	3. 18. 24	3. 45. 52				
Sa.	30	0. 14. 6. 47	0. 20. 57. 41	4. 10. 25	4. 31. 39				
Sun.	31	0. 27. 52. 22	1. 4. 50. 47	4. 49. 8	5. 2. 32				

Days of the Month.		THE MOON'S					
		Age.	Pass. Merid.	Right Ascension.		Declination.	
				Noon.	Midnight.	Noon.	Midnight.
				D. M. S.	D. M. S.	D. M. S.	D. M. S.
1	23	17. 23		352. 2. 50	358. 20. 53	6. 3. 44 S	3. 54. 20 S
2	24	18. 12		4. 41. 28	11. 5. 51	1. 40. 35 S	0. 36. 4 N
3	25	19. 3		17. 35. 20	24. 11. 21	2. 53. 59 N	5. 11. 21
4	26	19. 56		30. 55. 17	37. 48. 14	7. 26. 14	9. 36. 31
5	27	20. 52		44. 51. 7	52. 4. 33	11. 39. 53	13. 33. 58
6	28	21. 51		59. 28. 38	67. 2. 51	15. 16. 18	16. 44. 27
7	29	22. 52		74. 45. 59	82. 36. 11	17. 56. 13	18. 49. 41
8	30	23. 54		90. 30. 58	98. 27. 18	19. 23. 23	19. 36. 31
9	1	6		106. 22. 0	114. 11. 56	19. 28. 54	19. 1. 2
10	2	0. 54		121. 54. 16	129. 26. 44	18. 14. 5	17. 9. 41
11	3	1. 52		136. 47. 44	143. 56. 19	15. 49. 54	14. 16. 57
12	4	2. 45		150. 52. 16	157. 35. 52	12. 33. 9	10. 40. 45
13	5	3. 36		164. 7. 49	170. 29. 11	8. 41. 56	6. 38. 38
14	6	4. 23		176. 41. 14	182. 45. 23	4. 32. 39	2. 25. 32 N
15	7	5. 8		188. 43. 5	194. 35. 49	0. 18. 41 N	1. 46. 39 S
16	8	5. 52		200. 25. 1	206. 12. 6	3. 49. 21 S	5. 48. 25
17	9	6. 36		211. 58. 22	217. 45. 4	7. 42. 53	9. 31. 52
18	10	7. 19		223. 33. 18	229. 24. 3	11. 14. 30	12. 49. 57
19	11	8. 4		235. 18. 6	241. 16. 9	14. 17. 21	15. 35. 52
20	12	8. 50		247. 18. 38	253. 25. 47	16. 44. 38	17. 42. 52
21	13	9. 37		259. 37. 37	265. 53. 57	18. 29. 46	19. 4. 36
22	14	10. 26		272. 14. 20	278. 38. 10	19. 26. 45	19. 35. 40
23	15	11. 15		285. 4. 39	291. 32. 56	19. 31. 1	19. 12. 33
24	16	12. 4		298. 2. 6	304. 31. 16	18. 40. 16	17. 54. 22
25	17	12. 54		310. 59. 40	317. 26. 42	16. 55. 14	15. 43. 25
26	18	13. 42		323. 51. 56	330. 15. 12	14. 19. 41	12. 44. 58
27	19	14. 31		336. 36. 33	342. 56. 17	11. 0. 20	9. 6. 57
28	20	15. 19		349. 14. 57	355. 33. 17	7. 6. 6	4. 59. 10
29	21	16. 7		1. 52. 15	8. 12. 53	2. 47. 35 S	0. 32. 53 S
30	22	16. 57		14. 36. 23	21. 3. 58	1. 43. 19 N	3. 59. 20 N
31	23	17. 48		27. 36. 53	34. 16. 24	6. 13. 22	8. 23. 35

Days of the Week.	Days of the Month.	THE MOON'S				Proportional Logarithm.	
		Semidiameter.		Hor. Parallax.			
		Noon.	Midnight.	Noon.	Midnight.		
		M. S.	M. S.	M. S.	M. S.	Noon.	Midn.
F.	1	15. 35	15. 40	57. 10	57. 31	4981	4955
Sa.	2	15. 46	15. 52	57. 52	58. 13	4928	4902
Sun.	3	15. 58	16. 4	58. 35	58. 57	4875	4848
M.	4	16. 10	16. 15	59. 18	59. 38	4822	4798
Tu.	5	16. 20	16. 24	59. 56	60. 12	4776	4757
W.	6	16. 28	16. 31	60. 26	60. 36	4740	4728
Th.	7	16. 33	16. 34	60. 43	60. 47	4720	4715
F.	8	16. 33	16. 32	60. 45	60. 40	4717	4723
Sa.	9	16. 29	16. 26	60. 30	60. 17	4735	4751
Sun.	10	16. 21	16. 16	60. 0	59. 40	4771	4795
M.	11	16. 9	16. 2	59. 17	58. 52	4823	4854
Tu.	12	15. 55	15. 48	58. 25	57. 58	4887	4921
W.	13	15. 40	15. 33	57. 31	57. 4	4955	4989
Th.	14	15. 26	15. 19	56. 38	56. 14	5022	5053
F.	15	15. 13	15. 7	55. 51	55. 30	5082	5110
Sa.	16	15. 2	14. 58	55. 11	54. 55	5135	5156
Sun.	17	14. 54	14. 51	54. 41	54. 29	5174	5190
M.	18	14. 48	14. 46	54. 20	54. 13	5202	5211
Tu.	19	14. 45	14. 45	54. 9	54. 7	5217	5219
W.	20	14. 45	14. 45	54. 7	54. 9	5219	5217
Th.	21	14. 46	14. 48	54. 13	54. 19	5211	5203
F.	22	14. 50	14. 52	54. 26	54. 34	5194	5183
Sa.	23	14. 55	14. 58	54. 44	54. 55	5170	5156
Sun.	24	15. 1	15. 5	55. 7	55. 20	5140	5123
M.	25	15. 8	15. 12	55. 33	55. 47	5106	5088
Tu.	26	15. 16	15. 20	56. 1	56. 16	5070	5050
W.	27	15. 24	15. 28	56. 31	56. 46	5031	5012
Th.	28	15. 32	15. 37	57. 2	57. 18	4991	4971
F.	29	15. 41	15. 45	57. 33	57. 48	4952	4933
Sa.	30	15. 49	15. 53	58. 3	58. 18	4915	4896
Sun.	31	15. 57	16. 1	58. 33	58. 47	4877	4860

Stars' Names.	Days	Noon.		III ^h .		VI ^h .		IX ^h .		Midnight.		XV ^h .		XVIII ^h .		XXI ^h .	
		D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.
Fomalhaut.	20	85.	32. 46	84.	9. 29	82.	46. 10	81.	22. 49	79.	59. 28	78.	36. 7	77.	12. 45	75.	49. 22
	21	74.	26. 0	73.	2. 37	71.	39. 14	70.	15. 52	68.	52. 30	67.	29. 9	66.	5. 49	64.	42. 32
	22	63.	19. 18	61.	56. 6	60.	32. 59	59.	9. 57	57.	47. 1	56.	24. 11	55.	1. 30	53.	38. 59
	23	52.	16. 39	50.	54. 32	49.	32. 39	48.	11. 2	46.	49. 42	-	-	-	-	-	-
α Pegasi.	23	-	-	-	-	-	-	-	-	61.	37. 41	60.	14. 26	58.	51. 15	57.	28. 10
	24	56.	5. 15	54.	42. 31	53.	19. 59	51.	57. 44	50.	35. 46	49.	14. 5	47.	52. 48	46.	31. 57
	25	45.	11. 37	43.	51. 50	42.	32. 41	41.	14. 11	39.	56. 26	-	-	-	-	-	-
α Arietis.	25	-	-	-	-	-	-	-	-	80.	11. 12	78.	39. 30	77.	7. 39	75.	35. 40
	26	74.	3. 32	72.	31. 17	70.	58. 54	69.	26. 24	67.	53. 48	66.	21. 5	64.	48. 17	63.	15. 25
	27	61.	42. 28	60.	9. 27	58.	36. 24	57.	3. 19	55.	30. 13	53.	57. 6	52.	24. 2	50.	51. 0
	28	49.	18. 3	47.	45. 10	46.	12. 25	44.	39. 51	43.	7. 31	41.	35. 27	40.	3. 40	38.	32. 15
	29	37.	1. 13	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aldebaran.	29	66.	38. 6	64.	57. 30	63.	16. 43	61.	35. 42	59.	54. 30	58.	13. 5	56.	31. 28	54.	49. 38
	30	53.	7. 36	51.	25. 22	49.	42. 54	48.	0. 14	46.	17. 22	44.	34. 16	42.	50. 58	41.	7. 27
	31	39.	23. 43	37.	39. 46	35.	55. 38	34.	11. 15	32.	26. 40	30.	41. 53	28.	56. 53	27.	11. 41
	A. 1	25.	26. 16	-	-	-	-	-	-	-	-	-	-	-	-	-	-
The Sun.	29	-	-	-	-	-	-	120.	12. 17	118.	38. 16	117.	4. 3	115.	29. 37	113.	54. 58
	30	112.	20. 7	110.	45. 3	109.	9. 47	107.	34. 17	105.	58. 35	104.	22. 40	102.	46. 33	101.	10. 12
	31	99.	33. 38	97.	56. 51	96.	19. 51	94.	42. 39	93.	5. 15	91.	27. 38	89.	49. 48	88.	11. 46
	A. 1	86.	33. 31	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Stars' Names.	Days	Noon.		III ^h .		VI ^h .		IX ^h .		Midnight.		XV ^h .		XVIII ^h .		XXI ^h .	
		D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.
Regulus.	16	-	-	-	-	-	-	-	-	59. 0. 0	60. 30. 53	62. 1. 35	63. 32. 6				
	17	65. 2. 25	66. 32. 34	68. 2. 33	69. 32. 24	71. 2. 5	72. 31. 38	74. 1. 5	75. 30. 25								
	18	76. 59. 38	78. 28. 45	79. 57. 48	81. 26. 47	82. 55. 41	-	-	-								
Spica $\pi\gamma$.	18	-	-	-	-	-	-	-	-	29. 48. 2	31. 14. 38	32. 41. 21	34. 8. 10				
	19	35. 35. 6	37. 2. 8	38. 29. 16	39. 56. 29	41. 23. 48	42. 51. 12	44. 18. 40	45. 46. 15								
	20	47. 13. 54	48. 41. 38	50. 9. 29	51. 37. 25	53. 5. 26	54. 33. 33	56. 1. 47	57. 30. 7								
	21	58. 58. 33	60. 27. 6	61. 55. 47	63. 24. 35	64. 53. 30	66. 22. 33	67. 51. 44	69. 21. 4								
	22	70. 50. 31	-	-	-	-	-	-	-								
Antares.	22	26. 7. 11	27. 31. 9	28. 55. 45	30. 20. 58	31. 46. 45	33. 13. 4	34. 39. 53	36. 7. 10								
	23	37. 34. 53	39. 2. 58	40. 31. 24	42. 0. 12	43. 29. 21	44. 58. 47	46. 28. 32	47. 58. 34								
	24	49. 28. 54	50. 59. 30	52. 30. 22	54. 1. 30	55. 32. 54	57. 4. 33	58. 36. 26	60. 8. 35								
	25	61. 40. 57	63. 13. 33	64. 46. 23	66. 19. 27	67. 52. 44	69. 26. 15	70. 59. 58	72. 33. 55								
	26	74. 8. 5	75. 42. 28	77. 17. 3	78. 51. 51	80. 26. 51	82. 2. 3	83. 37. 28	85. 13. 4								
	27	86. 48. 53	88. 24. 54	90. 1. 6	91. 37. 30	93. 14. 6	94. 50. 53	96. 27. 51	98. 5. 0								
	28	99. 42. 20	-	-	-	-	-	-	-								
α Aquile.	28	55. 38. 48	57. 1. 31	58. 24. 56	59. 49. 2	61. 13. 46	62. 39. 7	64. 5. 1	65. 31. 29								
	29	66. 58. 29	68. 25. 57	69. 53. 52	71. 22. 13	72. 51. 1	74. 20. 12	75. 49. 44	77. 19. 37								
	30	78. 49. 52	80. 20. 25	81. 51. 16	83. 22. 23	84. 53. 46	-	-	-								
Fomalhaut.	30	-	-	-	-	-	-	-	-	53. 50. 38	52. 17. 24	53. 50. 38	55. 24. 28				
	31	56. 58. 52	58. 33. 49	60. 9. 16	61. 45. 13	63. 21. 37	64. 58. 27	66. 35. 42	68. 13. 19								
	A. 1	69. 51. 17	-	-	-	-	-	-	-								

CONFIGURATIONS of the SATELLITES of JUPITER,
at 1 o'Clock in the *Morning*.

1		.3	○	1 6 4 ²	
2		.1	○	.3	.4 2.●
3		.2	○	1.	.3 .4
4		.1	○	.2	3. .4
5	1.● 3.●		○	2.	4.
6		3. 2.	○	.1	4.
7		.3 .2	○	1.	4.
8		2 6 3	○	.1 4.	
9		.1	○	4. 2.3	
10		4. 2.	○	1.	.3
11		4.	○	.1 .2	3.
12	4.		○	3. 2.	1.●
13	.4	3. 2.	○	.1	
14	.4	.3 .2	○	1.	
15	.4	.3	○	.1 .2	
16		.4 1.	○	.3 2.	
17		2.	○	1. .3	4○
18	.2○	.1	○	.4 3.	
19			○	1. 3. 2.	.4
20	.1○	3. 2.	○		.4
21		.3 .2	○	1.	.4
22		.3	○	.1 .2	4.
23	.3○	1.	○	2.	4.
24		2.	○	1. 3 6 4	
25		.1 .2	○	4. 3.	
26		4.	○	1. 3. .2	
27		4. 3. 1 6 2	○		
28	4.	3. .2	○		1.●
29	4.	.3	○	.1 .2	
30	.4	1.	○	2.	.3○
31	.4	2.	○	.1 .3	

Days of the Week.	Days of the Month.	<i>Sundays, and other remarkable Days.</i>	<i>Phases of the MOON.</i>
			D. H. M.
			● New Moon 7. 10. 3
			☾ First Quarter . . . 14. 22. 24
			○ Full Moon 22. 22. 5
			☾ Last Quarter . . . 29. 22. 48
			<i>Other Phenomena.</i>
			D. H. M.
M.	1	Lammas Day.	1. 16. - ☾ f 8.
Tu.	2		2. 12. - ☾ γ 8.
W.	3		2. 13. - ☾ β 8.
Th.	4		2. 14. - ☾ 1 and 2 δ 8.
F.	5		2. 18. - ☾ α 8.
Sa.	6	Transfig. of our Lord.	2. 19. - ☾ α 8.
Sun.	7	10th Sunday after Trinity.	4. 5. - ☾ α 8.
M.	8	[Name of Jesus.	4. 15. - ☾ γ 8.
Tu.	9		5. 4. - ☾ δ 8.
W.	10	St. Lawrence.	5. 5. - ☾ ζ 8.
Th.	11		7. - . - ☾ eclipsed, invisible.
F.	12	King Geo. IV. b. 1762.	7. 12. - ☾ η 8.
Sa.	13		8. 8. - ☾ α 8.
Sun.	14	11th Sunday after Trinity.	8. 14. - ☾ δ 8.
M.	15		8. 18. - ☾ η 8.
Tu.	16		8. 19. - ☾ ε 8.
W.	17		8. 21. - ☾ ζ 8.
Th.	18		9. 17. - ☾ σ 8.
F.	19		11. 8. - ☾ 1 γ 8.
Sa.	20		12. 0. - ☾ η 8.
Sun.	21	12th Sun. aft. Tr. Duke of	15. 0. - ☾ γ 8.
M.	22	[Clarence born.	15. 11. - ☾ ψ 8.
Tu.	23		16. 4. - ☾ φ Oph.
W.	24	St. Bartholomew.	18. 5. - ☾ τ 8.
Th.	25		19. 11. - ☾ δ 8.
F.	26		22. - . - ☾ eclipsed, invisible.
Sa.	27		23. 11. 0 ☾ enters 8.
Sun.	28	13th Sunday after Trinity.	23. 15. - ☾ λ 8.
M.	29	[St. Augustine.	24. 1. - ☾ φ 8.
Tu.	30	St. John Bapt. beheaded.	26. 21. - ☾ γ 8.
W.	31		27. 18. - ☾ 2 ξ Ceti.
			28. 2. - ☾ μ Ceti.
			28. 22. - ☾ f 8.
			29. 18. - ☾ γ 8.
			29. 19. - ☾ 1 δ 8.
			29. 20. - ☾ 2 δ 8.
			30. 1. - ☾ α 8.
			31. 22. - ☾ γ 8.

Days of the Week.	Days of the Month.	THE SUN'S			Diff.	Equation	Diff.
		Longitude.	Rt. Ascen.	Declin.		Add to app. Time.	
			in Time.	North.			
		S. D. M. S.	H. M. S.	D. M. S.	M. S.	M. S.	S.
M.	1	4. 8. 25. 28	8. 43. 24. 5	18. 10. 22		6. 1, 1	
Tu.	2	4. 9. 22. 55	8. 47. 17. 7	17. 55. 16	15. 6	5. 57, 6	3, 5
W.	3	4. 10. 20. 23	8. 51. 10. 3	17. 39. 52	15. 24	5. 53, 7	3, 9
Th.	4	4. 11. 17. 52	8. 55. 2. 3	17. 24. 11	15. 41	5. 49, 1	4, 6
F.	5	4. 12. 15. 22	8. 58. 53. 6	17. 8. 12	15. 59	5. 44, 0	5, 1
					16. 15		5, 7
Sa.	6	4. 13. 12. 54	9. 2. 44. 5	16. 51. 57		5. 38, 3	
Sun.	7	4. 14. 10. 27	9. 6. 34. 7	16. 35. 26	16. 31	5. 32, 0	6, 3
M.	8	4. 15. 8. 1	9. 10. 24. 4	16. 18. 38	16. 48	5. 25, 1	6, 9
Tu.	9	4. 16. 5. 36	9. 14. 13. 4	16. 1. 35	17. 3	5. 17, 6	7, 5
W.	10	4. 17. 3. 11	9. 18. 1. 9	15. 44. 16	17. 19	5. 9, 5	8, 1
					17. 34		8, 6
Th.	11	4. 18. 0. 48	9. 21. 49. 7	15. 26. 42		5. 0, 9	
F.	12	4. 18. 58. 26	9. 25. 37. 0	15. 8. 53	17. 49	4. 51, 6	9, 3
Sa.	13	4. 19. 56. 5	9. 29. 23. 7	14. 50. 50	18. 3	4. 41, 8	9, 8
Sun.	14	4. 20. 53. 44	9. 33. 9. 9	14. 32. 33	18. 17	4. 31, 4	10, 4
M.	15	4. 21. 51. 25	9. 36. 55. 5	14. 14. 1	18. 32	4. 20, 5	10, 9
					18. 44		11, 5
Tu.	16	4. 22. 49. 7	9. 40. 40. 5	13. 55. 17		4. 9, 0	
W.	17	4. 23. 46. 50	9. 44. 24. 9	13. 36. 19	18. 58	3. 56, 9	12, 1
Th.	18	4. 24. 44. 33	9. 48. 8. 9	13. 17. 8	19. 11		12, 6
F.	19	4. 25. 42. 18	9. 51. 52. 3	12. 57. 45	19. 23	3. 44, 3	13, 1
Sa.	20	4. 26. 40. 4	9. 55. 35. 2	12. 38. 9	19. 36	3. 31, 2	13, 6
					19. 48	3. 17, 6	14, 1
Sun.	21	4. 27. 37. 51	9. 59. 17. 6	12. 18. 21		3. 3, 5	
M.	22	4. 28. 35. 40	10. 2. 59. 6	11. 58. 22	19. 59	2. 49, 0	14, 5
Tu.	23	4. 29. 33. 30	10. 6. 41. 0	11. 38. 12	20. 10		15, 1
W.	24	5. 0. 31. 21	10. 10. 22. 0	11. 17. 50	20. 22	2. 33, 9	15, 5
Th.	25	5. 1. 29. 14	10. 14. 2. 7	10. 57. 18	20. 32	2. 18, 4	15, 9
					20. 44	2. 2, 5	16, 2
F.	26	5. 2. 27. 9	10. 17. 42. 9	10. 36. 34		1. 46, 3	
Sa.	27	5. 3. 25. 5	10. 21. 22. 7	10. 15. 41	20. 53	1. 29, 6	16, 7
Sun.	28	5. 4. 23. 4	10. 25. 2. 1	9. 54. 38	21. 3	1. 12, 5	17, 1
M.	29	5. 5. 21. 4	10. 28. 41. 2	9. 33. 26	21. 12	0. 55, 1	17, 4
Tu.	30	5. 6. 19. 6	10. 32. 20. 0	9. 12. 4	21. 22	0. 37, 3	17, 8
					21. 31		18, 0
W.	31	5. 7. 17. 10	10. 35. 58. 5	8. 50. 33	21. 39	0. 19, 3	18, 4

Days	Time of ☉'s	THE SUN'S			Place
	Semidiam. passing Merid.	Semi- diameter.	Hourly Motion.	Logar. Distance.	of the ☉'s Node.
	M. S.	M. S.	M. S.		S. D. M.
1	1. 6, 5	15. 47, 4	2. 23, 6	0. 006337	4. 22. 27
7	1. 6, 0	15. 48, 3	2. 23, 8	0. 005968	4. 22. 7
13	1. 5, 5	15. 49, 3	2. 24, 1	0. 005513	4. 21. 48
19	1. 5, 0	15. 50, 4	2. 24, 5	0. 004992	4. 21. 29
25	1. 4, 6	15. 51, 6	2. 24, 8	0. 004434	4. 21. 10

ECLIPSES OF THE SATELLITES OF JUPITER.
MEAN TIME.

I. Satellite.		II. Satellite.		III. Satellite.	
<i>Immersions.</i>		<i>Immersions.</i>			
Days.	H. M. S.	Days.	H. M. S.	Days.	H. M. S.
1	18. 19. 15	* 2	11. 2. 36	2	1. 31. 15 Im.
* 3	12. 47. 54	6	0. 20. 1	● 2	5. 5. 13 E.
5	7. 16. 38	* 9	13. 37. 27	9	5. 31. 44 Im.
7	1. 45. 18	<i>Emersions.</i>		● 9	9. 5. 40 E.
8	20. 14. 3	13	5. 45. 25	● 16	9. 32. 30 Im.
<i>Emersions.</i>		16	19. 2. 53	* 16	13. 6. 24 E.
● 10	16. 58. 51	* 20	8. 20. 20	● 23	13. 34. 2 Im.
* 12	11. 27. 42	23	21. 37. 49	23	17. 7. 50 E.
14	5. 56. 24	* 27	10. 55. 19	● 30	17. 35. 22 Im.
16	0. 25. 12	31	0. 12. 52	30	21. 9. 5 E.
17	18. 53. 55				
* 19	13. 22. 44				
21	7. 51. 29				
23	2. 20. 18				
24	20. 49. 3				
26	15. 17. 54				
* 28	9. 46. 41			● 10	7. 43. 20 Im.
30	4. 15. 32			● 10	12. 27. 6 E.
31	22. 44. 19			● 27	1. 53. 42 Im.
				27	6. 37. 58 E.

IV. Satellite.

Days	THE PLANETS'							
	Heliocentric		Geocentric		Declin.	Rt. Asc. in Time.	Passage Merid.	
	Long.	Lat.	Long.	Lat.				
	S. D. M.	D. M.	S. D. M.	D. M.	D. M.	H. M.	H. M.	
♿ MERCURY. Gr. Elong. 31 ^d .								
1	5. 27. 37	5. 16 N	4. 21. 26	1. 34 N	15. 51 N	9. 37	0. 54	
4	6. 9. 4	4. 15	4. 26. 49	1. 21	13. 51	9. 58	1. 3	
7	6. 19. 38	3. 9	5. 1. 59	1. 4	11. 46	10. 17	1. 11	
10	6. 29. 28	2. 2	5. 6. 53	0. 44	9. 40	10. 36	1. 18	
13	7. 8. 45	0. 56 N	5. 11. 35	0. 21 N	7. 33	10. 53	1. 23	
16	7. 17. 36	0. 9 S	5. 16. 2	0. 4 S	5. 27	11. 9	1. 28	
19	7. 26. 9	1. 12	5. 20. 16	0. 30	3. 24	11. 23	1. 32	
22	8. 4. 30	2. 12	5. 24. 14	0. 57	1. 25 N	11. 37	1. 34	
25	8. 12. 45	3. 8	5. 27. 56	1. 25	0. 29 S	11. 50	1. 36	
28	8. 21. 0	4. 0	6. 1. 20	1. 53	2. 15	12. 2	1. 37	
31	8. 29. 20	4. 47	6. 4. 23	2. 21	3. 54	12. 12	1. 36	
♀ VENUS.								
1	8. 26. 42	0. 41 S	5. 24. 9	0. 44 S	1. 39 N	11. 37	2. 54	
7	9. 6. 12	1. 13	5. 29. 38	1. 25	1. 9 S	11. 56	2. 50	
13	9. 15. 41	1. 44	6. 4. 50	2. 10	3. 54	12. 14	2. 45	
19	9. 25. 10	2. 11	6. 9. 35	2. 59	6. 32	12. 30	2. 38	
25	10. 4. 39	2. 35	6. 13. 49	3. 51	9. 0	12. 45	2. 30	
♂ MARS.								
1	5. 6. 56	1. 45 N	4. 26. 13	1. 7 N	13. 51 N	9. 55	1. 12	
7	5. 9. 34	1. 43	5. 0. 0	1. 6	12. 30	10. 10	1. 3	
13	5. 12. 11	1. 42	5. 3. 48	1. 4	11. 7	10. 25	0. 55	
19	5. 14. 49	1. 39	5. 7. 37	1. 3	9. 41	10. 39	0. 47	
25	5. 17. 27	1. 37	5. 11. 26	1. 1	8. 13	10. 53	0. 39	
♃ JUPITER. 8 10 ^d . 9 ^h .								
1	10. 16. 35	0. 48 S	10. 18. 37	1. 0 S	16. 13 S	21. 26	12. 40	
7	10. 17. 7	0. 49	10. 17. 51	1. 1	16. 28	21. 22	12. 14	
13	10. 17. 38	0. 50	10. 17. 4	1. 2	16. 43	21. 19	11. 48	
19	10. 18. 10	0. 50	10. 16. 17	1. 3	16. 58	21. 16	11. 22	
25	10. 18. 42	0. 51	10. 15. 33	1. 3	17. 12	21. 13	10. 57	
♄ SATURN. 8 28 ^d . 20 ^h . 3 ^h .								
1	5. 4. 15	1. 40 N	5. 1. 46	1. 31 N	12. 17 N	10. 17	1. 34	
7	5. 4. 27	1. 41	5. 2. 29	1. 31	12. 1	10. 20	1. 13	
13	5. 4. 40	1. 41	5. 3. 14	1. 32	11. 45	10. 23	0. 53	
19	5. 4. 53	1. 42	5. 3. 59	1. 32	11. 29	10. 26	0. 34	
25	5. 5. 5	1. 42	5. 4. 44	1. 32	11. 13	10. 29	0. 15	
♅ GEORGIAN. 8 5 ^d . 6 ^h . 3 ^h .								
1	10. 12. 28	0. 40 S	10. 12. 41	0. 42 S	17. 41 S	21. 1	12. 16	
11	10. 12. 34	0. 40	10. 12. 17	0. 42	17. 48	21. 0	11. 36	
21	10. 12. 41	0. 40	10. 11. 53	0. 42	17. 55	20. 58	10. 57	

Days of the Week.	Days of the Month.	THE MOON'S							
		Longitude.				Latitude.			
		Noon.		Midnight.		Noon.		Midnight.	
		S. D. M. S.	S. D. M. S.	S. D. M. S.	S. D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.
M.	1	1. 11. 52. 48	1. 18. 58. 15	5. 11. 32 S	5. 15. 52 S				
Tu.	2	1. 26. 6. 53	2. 3. 18. 24	5. 15. 22	5. 9. 57				
W.	3	2. 10. 32. 23	2. 17. 48. 17	4. 59. 36	4. 44. 24				
Th.	4	2. 25. 5. 31	3. 2. 23. 27	4. 24. 35	4. 0. 26				
F.	5	3. 9. 41. 19	3. 16. 58. 21	3. 32. 21	3. 0. 52				
Sa.	6	3. 24. 13. 51	4. 1. 27. 2	2. 26. 33	1. 50. 3				
Sun.	7	4. 8. 37. 11	4. 15. 43. 38	1. 12. 3 S	0. 33. 14 S				
M.	8	4. 22. 45. 48	4. 29. 43. 13	0. 5. 43 N	0. 44. 9 N				
Tu.	9	5. 6. 35. 31	5. 13. 22. 27	1. 21. 28	1. 57. 8				
W.	10	5. 20. 3. 53	5. 26. 39. 47	2. 30. 43	3. 1. 48				
Th.	11	6. 3. 10. 14	6. 9. 35. 25	3. 30. 5	3. 55. 19				
F.	12	6. 15. 55. 36	6. 22. 11. 9	4. 17. 19	4. 35. 58				
Sa.	13	6. 28. 22. 28	7. 4. 30. 1	4. 51. 10	5. 2. 52				
Sun.	14	7. 10. 34. 18	7. 16. 35. 51	5. 11. 5	5. 15. 48				
M.	15	7. 22. 35. 15	7. 28. 33. 3	5. 17. 3	5. 14. 52				
Tu.	16	8. 4. 29. 49	8. 10. 26. 9	5. 9. 19	5. 0. 28				
W.	17	8. 16. 22. 34	8. 22. 19. 38	4. 48. 25	4. 33. 14				
Th.	18	8. 28. 17. 52	9. 4. 17. 46	4. 15. 3	3. 53. 59				
F.	19	9. 10. 19. 46	9. 16. 24. 17	3. 30. 12	3. 3. 53				
Sa.	20	9. 22. 31. 42	9. 28. 42. 20	2. 35. 16	2. 4. 35				
Sun.	21	10. 4. 56. 28	10. 11. 14. 19	1. 32. 8	0. 58. 14 N				
M.	22	10. 17. 36. 1	10. 24. 1. 40	0. 23. 17 N	0. 12. 19 S				
Tu.	23	11. 0. 31. 18	11. 7. 4. 55	0. 48. 7 S	1. 23. 38				
W.	24	11. 13. 42. 26	11. 20. 23. 44	1. 58. 22	2. 31. 47				
Th.	25	11. 27. 8. 37	0. 3. 56. 54	3. 3. 23	3. 32. 39				
F.	26	0. 10. 48. 20	0. 17. 42. 40	3. 59. 5	4. 22. 12				
Sa.	27	0. 24. 39. 37	1. 1. 38. 51	4. 41. 37	4. 56. 58				
Sun.	28	1. 8. 40. 5	1. 15. 43. 1	5. 7. 57	5. 14. 20				
M.	29	1. 22. 47. 20	1. 29. 52. 44	5. 16. 0	5. 12. 52				
Tu.	30	2. 6. 58. 56	2. 14. 5. 38	5. 4. 57	4. 52. 21				
W.	31	2. 21. 12. 31	2. 28. 19. 19	4. 35. 15	4. 13. 55				

Days of the Month.		THE MOON'S					
		Age.	Pass. Merid.	Right Ascension.		Declination.	
				Noon.	Midnight.	Noon.	Midnight.
				D. M. S.	D. M. S.	D. M. S.	D. M. S.
D.	H. M.	D. M. S.	D. M. S.	D. M. S.	D. M. S.		
1	24	18. 41	41. 3. 32	47. 59. 10	10. 27. 58 N	12. 24. 31 N	
2	25	19. 38	55. 3. 54	62. 17. 54	14. 11. 7	15. 45. 41	
3	26	20. 36	69. 40. 52	77. 11. 53	17. 6. 11	18. 10. 44	
4	27	21. 36	84. 49. 30	92. 31. 45	18. 57. 42	19. 25. 53	
5	28	22. 37	100. 16. 10	108. 0. 5	19. 34. 32	19. 23. 25	
6	29	23. 35	115. 40. 51	123. 15. 59	18. 52. 53	18. 3. 51	
7	1	♂	130. 43. 20	138. 1. 17	16. 57. 44	15. 36. 22	
8	2	0. 31	145. 8. 48	152. 5. 24	14. 1. 46	12. 16. 7	
9	3	1. 24	158. 51. 5	165. 26. 19	10. 21. 39	8. 20. 33	
10	4	2. 14	171. 51. 53	178. 8. 44	6. 14. 52	4. 6. 28 N	
11	5	3. 1	184. 18. 4	190. 21. 9	1. 57. 4 N	0. 11. 47 S	
12	6	3. 46	196. 19. 16	202. 13. 44	2. 18. 42 S	4. 22. 30	
13	7	4. 31	208. 5. 50	213. 56. 46	6. 22. 4	8. 16. 25	
14	8	5. 15	219. 47. 42	225. 39. 40	10. 4. 37	11. 45. 48	
15	9	6. 0	231. 33. 37	237. 30. 21	13. 19. 10	14. 43. 55	
16	10	6. 46	243. 30. 30	249. 34. 34	15. 59. 16	17. 4. 28	
17	11	7. 33	255. 42. 49	261. 55. 23	17. 58. 45	18. 41. 25	
18	12	8. 21	268. 12. 9	274. 32. 50	19. 11. 52	19. 29. 31	
19	13	9. 10	280. 56. 57	287. 23. 53	19. 33. 51	19. 24. 31	
20	14	10. 0	293. 52. 56	300. 23. 20	19. 1. 19	18. 24. 13	
21	15	10. 50	306. 54. 20	313. 25. 17	17. 33. 22	16. 29. 8	
22	16	11. 40	319. 55. 35	326. 24. 50	15. 12. 6	13. 43. 1	
23	17	12. 30	332. 52. 51	339. 19. 38	12. 2. 51	10. 12. 44	
24	18	13. 19	345. 45. 25	352. 10. 37	8. 13. 59	6. 8. 1	
25	19	14. 8	358. 35. 50	5. 1. 51	3. 56. 26 S	1. 40. 54 S	
26	20	14. 59	11. 29. 33	17. 59. 55	0. 36. 49 N	2. 54. 55 N	
27	21	15. 50	24. 33. 58	31. 12. 42	5. 11. 29	7. 24. 34	
28	22	16. 43	37. 57. 1	44. 47. 42	9. 32. 12	11. 32. 24	
29	23	17. 38	51. 45. 19	58. 50. 10	13. 23. 10	15. 2. 36	
30	24	18. 35	66. 2. 9	73. 20. 45	16. 28. 52	17. 40. 17	
31	25	19. 33	80. 45. 2	88. 13. 40	18. 35. 24	19. 13. 2	

Days of the Week.	Days of the Month.	THE MOON'S				Proportional Logarithm.	
		Semidiameter.		Hor. Parallax.			
		Noon.	Midnight.	Noon.	Midnight.		
		M. S.	M. S.	M. S.	M. S.	Noon.	Midn.
M.	1	16. 5	16. 8	59. 0	59. 14	4844	4827
Tu.	2	16. 11	16. 14	59. 25	59. 36	4814	4800
W.	3	16. 17	16. 19	59. 45	59. 52	4789	4781
Th.	4	16. 20	16. 20	59. 56	59. 58	4776	4774
F.	5	16. 20	16. 19	59. 57	59. 53	4775	4780
Sa.	6	16. 17	16. 14	59. 46	59. 36	4788	4800
Sun.	7	16. 11	16. 7	59. 23	59. 7	4816	4836
M.	8	16. 2	15. 56	58. 49	58. 29	4858	4882
Tu.	9	15. 50	15. 44	58. 7	57. 44	4910	4938
W.	10	15. 38	15. 31	57. 21	56. 57	4967	4998
Th.	11	15. 25	15. 19	56. 33	56. 11	5028	5057
F.	12	15. 13	15. 8	55. 50	55. 31	5084	5108
Sa.	13	15. 3	14. 58	55. 13	54. 57	5132	5153
Sun.	14	14. 55	14. 52	54. 43	54. 32	5172	5186
M.	15	14. 49	14. 48	54. 23	54. 17	5198	5206
Tu.	16	14. 47	14. 46	54. 14	54. 13	5210	5211
W.	17	14. 47	14. 48	54. 15	54. 19	5209	5203
Th.	18	14. 50	14. 52	54. 25	54. 33	5195	5185
F.	19	14. 55	14. 58	54. 43	54. 55	5172	5156
Sa.	20	15. 1	15. 6	55. 8	55. 23	5139	5119
Sun.	21	15. 10	15. 14	55. 39	55. 55	5098	5077
M.	22	15. 19	15. 23	56. 12	56. 29	5055	5034
Tu.	23	15. 28	15. 33	56. 46	57. 3	5012	4990
W.	24	15. 37	15. 41	57. 19	57. 35	4970	4950
Th.	25	15. 46	15. 49	57. 50	58. 3	4931	4915
F.	26	15. 53	15. 56	58. 16	58. 27	4899	4885
Sa.	27	15. 59	16. 1	58. 38	58. 46	4871	4861
Sun.	28	16. 3	16. 5	58. 54	59. 1	4852	4843
M.	29	16. 6	16. 7	59. 6	59. 10	4837	4832
Tu.	30	16. 8	16. 9	59. 13	59. 15	4828	4826
W.	31	16. 9	16. 9	59. 16	59. 15	4825	4826

[illegible]

DISTANCES of the MOON'S <i>Centre</i> from the SUN, and from STARS <i>WEST</i> of her.																	
Stars' Names,	Days	<i>Noon.</i>		<i>III^h.</i>		<i>VI^h.</i>		<i>IX^h.</i>		<i>Midnight.</i>		<i>XV^h.</i>		<i>XVIII^h.</i>		<i>XXI^h.</i>	
		D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	
α Pegasi.	1	55. 38. 30	57. 12. 57	-	-	58. 47. 58	60. 23. 32	61. 59. 37	63. 36. 12	65. 13. 15	66. 50. 43	68. 28. 37	70. 6. 53	71. 45. 30	73. 24. 28	75. 3. 44	76. 43. 17
	2	68. 28. 37	70. 6. 53	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	3	81. 43. 27	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
α Arietis.	3	38. 9. 6	39. 48. 0	41. 27. 37	43. 7. 56	44. 48. 52	46. 30. 23	48. 12. 25	49. 54. 56	-	-	-	-	-	-	-	-
	4	51. 37. 52	53. 21. 10	55. 4. 48	56. 48. 43	58. 32. 49	-	-	-	-	-	-	-	-	-	-	-
	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
The Sun.	11	45. 15. 49	46. 45. 27	48. 14. 44	49. 43. 41	51. 12. 17	52. 40. 33	54. 8. 30	55. 36. 8	57. 4. 57	58. 32. 49	60. 23. 32	61. 59. 37	63. 36. 12	65. 13. 15	66. 50. 43	68. 28. 37
	12	57. 3. 26	58. 30. 25	59. 57. 7	61. 23. 30	62. 49. 36	64. 15. 24	65. 40. 57	67. 6. 14	68. 28. 37	70. 6. 53	71. 45. 30	73. 24. 28	75. 3. 44	76. 43. 17	78. 2. 5	79. 51. 53
	13	68. 31. 15	69. 56. 1	71. 20. 33	72. 44. 51	74. 8. 55	75. 32. 46	76. 56. 25	78. 19. 53	80. 3. 10	81. 16. 48	82. 50. 16	83. 23. 44	84. 37. 12	85. 50. 40	87. 4. 8	88. 18. 1
	14	79. 43. 8	81. 6. 12	82. 29. 7	83. 51. 53	85. 14. 29	86. 36. 57	87. 59. 18	89. 21. 32	90. 34. 56	91. 48. 24	92. 61. 52	93. 75. 20	94. 88. 48	95. 102. 16	96. 115. 44	97. 129. 12
	15	90. 43. 39	92. 5. 39	93. 27. 36	94. 49. 27	96. 11. 13	97. 32. 56	98. 54. 36	100. 16. 15	101. 28. 55	102. 51. 35	103. 14. 15	104. 26. 55	105. 39. 35	106. 52. 15	107. 64. 55	108. 77. 35
	16	101. 37. 50	102. 59. 24	104. 20. 59	105. 42. 34	107. 4. 8	108. 25. 43	109. 47. 21	111. 9. 1	112. 20. 40	113. 32. 20	114. 44. 0	115. 55. 40	116. 67. 20	117. 79. 0	118. 90. 40	119. 102. 20
	17	112. 30. 42	113. 52. 27	115. 14. 17	116. 36. 11	117. 58. 9	119. 20. 12	120. 42. 23	121. 54. 33	122. 66. 43	123. 78. 53	124. 91. 3	125. 103. 13	126. 115. 23	127. 127. 33	128. 139. 43	129. 151. 53
	18	123. 42. 12	124. 64. 27	125. 26. 42	126. 49. 0	127. 11. 15	128. 33. 30	129. 55. 45	130. 18. 0	131. 40. 15	132. 62. 30	133. 84. 45	134. 107. 0	135. 129. 15	136. 151. 30	137. 173. 45	138. 196. 0
	19	134. 54. 27	135. 76. 42	136. 39. 0	137. 61. 15	138. 23. 30	139. 45. 45	140. 68. 0	141. 30. 15	142. 52. 30	143. 74. 45	144. 97. 0	145. 119. 15	146. 141. 30	147. 163. 45	148. 186. 0	149. 208. 15
	Spica π .	15	31. 55. 12	33. 22. 22	34. 49. 34	36. 16. 50	37. 44. 9	39. 11. 31	40. 38. 56	42. 6. 23	43. 33. 48	44. 61. 13	45. 88. 38	46. 116. 63	47. 143. 88	48. 171. 13	49. 198. 38	50. 226. 63
16		43. 33. 53	45. 1. 26	46. 29. 2	47. 56. 42	49. 24. 25	50. 52. 11	52. 20. 2	53. 47. 58	54. 75. 33	55. 103. 8	56. 131. 33	57. 159. 58	58. 188. 13	59. 216. 38	60. 244. 63	61. 272. 88
17		55. 15. 58	56. 44. 3	58. 12. 14	59. 40. 31	61. 8. 53	62. 37. 22	64. 5. 59	65. 34. 43	66. 63. 18	67. 91. 43	68. 120. 18	69. 148. 43	70. 177. 18	71. 205. 43	72. 234. 68	73. 262. 93
18		67. 3. 35	68. 32. 35	70. 1. 45	71. 31. 3	73. 0. 30	74. 30. 7	75. 59. 54	77. 29. 51	78. 59. 58	80. 29. 58	81. 59. 58	82. 29. 58	83. 59. 58	84. 29. 58	85. 59. 58	86. 29. 58

Stars' Names.	Days	Noon.		III ^b .		VI ^b .		IX ^b .		Midnight.		XV ^b .		XVIII ^b .		XXI ^b .	
		D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.
Antares.	19	33. 51. 46		35. 18. 41		36. 46. 2		38. 13. 48		39. 42. 0		41. 10. 36		42. 39. 35		44. 8. 56	
	20	45. 38. 39		47. 8. 42		48. 39. 5		50. 9. 49		51. 40. 52		53. 12. 14		54. 43. 56		56. 15. 56	
	21	57. 48. 15		59. 20. 52		60. 53. 46		62. 26. 59		64. 0. 29		65. 34. 17		67. 8. 22		68. 42. 41	
	22	70. 17. 23		71. 52. 19		73. 27. 31		75. 2. 59		76. 38. 43		78. 14. 43		79. 50. 59		81. 27. 31	
	23	83. 4. 17		84. 41. 19		86. 18. 35		87. 56. 5		89. 33. 50		91. 11. 49		92. 50. 1		94. 28. 26	
	24	96. 7. 4		97. 45. 54		99. 24. 57		101. 4. 11		102. 43. 37		-		-		-	
α Aquilæ.	24	-	-	-	-	-	-	-	-	58. 13. 2		59. 38. 34		61. 4. 45		62. 31. 33	
	25	63. 58. 55		65. 26. 50		66. 55. 15		68. 24. 10		69. 53. 31		71. 23. 16		72. 53. 25		74. 23. 56	
	26	75. 54. 47		77. 25. 56		78. 57. 22		80. 29. 4		82. 0. 59*		-		-		-	
Fomalhaut.	26	-	-	-	-	-	-	-	-	47. 51. 14		49. 23. 32		50. 56. 28		52. 30. 0	
	27	54. 4. 6		55. 38. 44		57. 13. 51		58. 49. 25		60. 25. 25		62. 1. 46		63. 38. 29		65. 15. 32	
	28	66. 52. 54		68. 30. 32		70. 8. 26		71. 46. 34		73. 24. 54		-		-		-	
α Pegasi.	28	-	-	-	-	-	-	-	-	59. 3. 49		60. 39. 0		62. 14. 35		63. 50. 31	
	29	65. 26. 48		67. 3. 24		68. 40. 17		70. 17. 26		71. 54. 50		73. 32. 26		75. 10. 15		76. 48. 14	
	30	78. 26. 23		80. 4. 40		81. 43. 5		83. 21. 35		85. 0. 10		-		-		-	
α Arietis.	30	-	-	-	-	-	-	-	-	41. 23. 6		43. 1. 19		44. 40. 1		46. 19. 11	
	31	47. 58. 47		49. 38. 46		51. 19. 5		52. 59. 44		54. 40. 39		56. 21. 48		58. 3. 10		59. 44. 42	
	S. 1.	61. 26. 21		-	-	-	-	-	-	-		-		-		-	

CONFIGURATIONS of the SATELLITES of JUPITER,
At X o'Clock in the *Evening*.

1		.4	O	1°.2 3°	
2		.1	3° O 2 4		
3		3° .2	O	1° .4	
4		.3	.1 O .2		.4
5	1. ●	.3	O	2°	.4
6		2°	O	.1 .3	.4
7		.2 1°	O		.3 4°
8			O	.1 .2 3°	4°
9		.1	3° O 2°	4°	
10		3° 2°	O	1°	4. ●
11		.3 4°	.1 O		.2 O
12		4°	.3 O	2°	1. ●
13	4°	2°	O .1 .3		
14	4°	.2 1°	O	.3	
15	.4		O	.1 .2 3°	
16	.4	.1	O	2°	3. ●
17		.4 3° 2°	O	1°	
18		.3	1 4 .2 O		
19		.3	O	1° .4 2°	
20	.1 O	2°	O	.3 .4	
21		.2 1°	O	.3 .4	
22			O	.1 .2 3°	.4
23		1°	O	3° 2°	4°
24		3° 2°	O	1°	4°
25		.3	.1 .2 O		4°
26		.3	O	1° 4° .2	
27	.1 O	4°	O .3		2. ●
28		4° .2 1°	O	.3	
29	4°		O	.1 .2 3°	
30	4°	1°	O	3° 2°	
31	.4	3° 2°	O	.1	

Days of the Week.	Days of the Month.	<i>Sundays, and other remarkable Days.</i>	<i>Phases of the MOON.</i>
Th.	1	Giles.	D. H. M.
F.	2	London burnt, 1666, O.S.	● New Moon 5. 20. 33
Sa.	3		☾ First Quarter . . . 13. 16. 42
			○ Full Moon . . . 21. 9. 55
			☾ Last Quarter . . . 28. 4. 28
			<i>Other Phenomena.</i>
			D. H. M.
Sun.	4	14th Sunday after Trinity.	2. 1. - ♂ σ Ω.
M.	5		3. 16. - ♀ ♀ ♀.
Tu.	6		4. 17. - ☽ α Ω.
W.	7	Enurchus.	5. 4. - ☽ ε Ω.
Th.	8	Nativity of B. V. Mary.	5. 9. - ☽ η.
F.	9		7. 17. - ☽ ι γ ♀.
Sa.	10		11. 8. - ☽ γ ♄.
			11. 20. - ☽ ψ ♄.
			12. 12. - ☽ φ Oph.
Sun.	11	15th Sunday after Trinity.	13. - - - ♀ Stationary.
M.	12		14. 16. - ♂ β ♀.
Tu.	13		15. 20. - ☽ δ ♄.
W.	14	Holy Cross.	17. - - - ♀ Station. near 63 ♀.
Th.	15		20. 0. - ☽ λ ☿.
F.	16		20. 10. - ☽ φ ☿.
Sa.	17	Lambert.	23. 5. - ☽ ι ♄.
			23. 7. 46 ☽ enters ♄.
Sun.	18	16th Sunday after Trinity.	24. 1. - ☽ 2 ξ Ceti.
M.	19		24. 8. - ☽ μ Ceti.
Tu.	20		25. 4. - ☽ f ♄.
W.	21	St. Matthew.	26. 0. - ☽ γ ♄.
Th.	22		26. 1. - ☽ 1 δ ♄.
F.	23		26. 2. - ☽ 2 δ ♄.
Sa.	24		26. 7. - ☽ α ♄.
			27. 3. - ♂ η ♀.
Sun.	25	17th Sunday after Trinity.	28. 4. - ☽ ι ♄.
M.	26	St. Cyprian.	28. 18. - ☽ ζ ♄.
Tu.	27		
W.	28		
Th.	29	St. Michael. Q. of Wirt. b.	
F.	30	St. Jerome.	

Days of the Week.	Days of the Month.	THE SUN'S			Diff.	Equation of Time.	Diff.
		Longitude.	Rt. Ascen. in Time.	Declin. North.		Add to app. Time.	
		S. D. M. S.	H. M. S.	D. M. S.	M. S.	M. S.	S.
Th.	1	5. 8. 15. 16	10. 39. 36, 6	8. 28. 54	21. 48	0. 0, 9 <i>Subtr.</i>	18, 6
F.	2	5. 9. 13. 24	10. 43. 14, 5	8. 7. 6	21. 56	0. 17, 7	18, 9
Sa.	3	5. 10. 11. 35	10. 46. 52, 1	7. 45. 10	22. 4	0. 36, 6	19, 1
Sun.	4	5. 11. 9. 47	10. 50. 29, 4	7. 23. 6	22. 10	0. 55, 7	19, 5
M.	5	5. 12. 8. 1	10. 54. 6, 5	7. 0. 56	22. 18	1. 15, 2	19, 6
Tu.	6	5. 13. 6. 17	10. 57. 43, 4	6. 38. 38	22. 24	1. 34, 8	19, 9
W.	7	5. 14. 4. 34	11. 1. 20, 0	6. 16. 14	22. 30	1. 54, 7	20, 0
Th.	8	5. 15. 2. 53	11. 4. 56, 4	5. 53. 44	22. 37	2. 14, 7	20, 3
F.	9	5. 16. 1. 14	11. 8. 32, 7	5. 31. 7	22. 41	2. 35, 0	20, 4
Sa.	10	5. 16. 59. 37	11. 12. 8, 7	5. 8. 26	22. 47	2. 55, 4	20, 6
Sun.	11	5. 17. 58. 1	11. 15. 44, 6	4. 45. 39	22. 52	3. 16, 0	20, 7
M.	12	5. 18. 56. 27	11. 19. 20, 4	4. 22. 47	22. 56	3. 36, 7	20, 9
Tu.	13	5. 19. 54. 54	11. 22. 56, 1	3. 59. 51	23. 1	3. 57, 6	20, 9
W.	14	5. 20. 53. 23	11. 26. 31, 6	3. 36. 50	23. 4	4. 18, 5	21, 0
Th.	15	5. 21. 51. 54	11. 30. 7, 1	3. 13. 46	23. 8	4. 39, 5	21, 1
F.	16	5. 22. 50. 26	11. 33. 42, 5	2. 50. 38	23. 11	5. 0, 6	21, 2
Sa.	17	5. 23. 49. 0	11. 37. 17, 8	2. 27. 27	23. 13	5. 21, 8	21, 2
Sun.	18	5. 24. 47. 35	11. 40. 53, 1	2. 4. 14	23. 16	5. 43, 0	21, 1
M.	19	5. 25. 46. 12	11. 44. 28, 5	1. 40. 58	23. 19	6. 4, 1	21, 2
Tu.	20	5. 26. 44. 51	11. 48. 3, 8	1. 17. 39	23. 20	6. 25, 3	21, 1
W.	21	5. 27. 43. 32	11. 51. 39, 2	0. 54. 19	23. 22	6. 46, 4	21, 0
Th.	22	5. 28. 42. 15	11. 55. 14, 7	0. 30. 57	23. 23	7. 7, 4	20, 9
F.	23	5. 29. 40. 59	11. 58. 50, 3	0. 7. 34 <i>South.</i>	23. 24	7. 28, 3	20, 8
Sa.	24	6. 0. 39. 46	12. 2. 25, 9	0. 15. 50	23. 25	7. 49, 1	20, 7
Sun.	25	6. 1. 38. 35	12. 6. 1, 8	0. 39. 15	23. 25	8. 9, 8	20, 5
M.	26	6. 2. 37. 27	12. 9. 37, 8	1. 2. 40	23. 25	8. 30, 3	20, 3
Tu.	27	6. 3. 36. 20	12. 13. 14, 0	1. 26. 5	23. 24	8. 50, 6	20, 0
W.	28	6. 4. 35. 17	12. 16. 50, 4	1. 49. 29	23. 25	9. 10, 6	19, 8
Th.	29	6. 5. 34. 15	12. 20. 27, 1	2. 12. 54	23. 22	9. 30, 4	19, 6
F.	30	6. 6. 33. 16	12. 24. 4, 0	2. 36. 16	23. 22	9. 50, 0	19, 3

Days	Time of ☉'s	THE SUN'S			Place
	Semidiam.	Semi-diameter.	Hourly Motion.	Logar. Distance.	of the ☽'s Node.
	passing Merid.				
	M. S.	M. S.	M. S.		S. D. M.
1	1. 4. 2	15. 53, 1	2. 25, 3	0. 003746	4. 20. 48
7	1. 3. 9	15. 54, 6	2. 25, 7	0. 003104	4. 20. 29
13	1. 3. 8	15. 56, 1	2. 26, 2	0. 002404	4. 20. 10
19	1. 3. 8	15. 57, 7	2. 26, 7	0. 001676	4. 19. 51
25	1. 3. 9	15. 59, 3	2. 27, 2	0. 000945	4. 19. 32

ECLIPSES OF THE SATELLITES OF JUPITER. MEAN TIME.

I. Satellite.		II. Satellite.		III. Satellite.	
<i>Emersions.</i>		<i>Emersions.</i>			
Days.	H. M. S.	Days.	H. M. S.	Days.	H. M. S.
2	17. 13. 13	* 3	13. 30. 25	● 6	21. 37. 14 Im.
* 4	11. 42. 1	7	2. 48. 1	7	1. 10. 52 E.
6	6. 10. 55	10	16. 5. 36	● 14	1. 38. 39 Im.
8	0. 39. 44	14	5. 23. 12	14	5. 12. 9 E.
9	19. 8. 38	17	18. 40. 52	21	5. 40. 0 Im.
11	13. 37. 28	* 21	7. 58. 31	* 21	9. 13. 22 E.
* 13	8. 6. 23	24	21. 16. 16	* 28	9. 41. 29 Im.
15	2. 35. 14	* 28	10. 34. 0	28	13. 14. 42 E.
16	21. 4. 9				
18	15. 33. 1				
* 20	10. 1. 57				
22	4. 30. 49				
23	22. 59. 46				
25	17. 28. 39				
* 27	11. 57. 36				
* 29	6. 26. 29				
				IV. Satellite.	
				12	20. 5. 13 Im.
				13	0. 49. 38 E.
				29	14. 18. 17 Im.
				29	19. 2. 30 E.

Days	THE PLANETS							
	Heliocentric		Geocentric		Declin.	Rt. Asc.	Passage	
	Long.	Lat.	Long.	Lat.		in Time.	Merid.	
	S. D. M.	D.M.	S. D. M.	D.M.	D.M.	H. M.	H. M.	
♿ MERCURY. Inf. ♂ 26 ^d . 6 ^h .								
1	9. 2. 8	5. 2 S	6. 5. 18	2. 30 S	4. 24 S	12. 15	1. 36	
4	9. 10. 44	5. 42	6. 7. 48	2. 57	5. 48	12. 24	1. 33	
7	9. 19. 38	6. 16	6. 9. 46	3. 21	6. 57	12. 31	1. 29	
10	9. 28. 58	6. 41	6. 11. 6	3. 41	7. 48	12. 35	1. 22	
13	10. 8. 50	6. 56	6. 11. 39	3. 55	8. 13	12. 37	1. 12	
16	10. 19. 24	6. 59	6. 11. 16	4. 1	8. 9	12. 35	0. 59	
19	11. 0. 49	6. 47	6. 9. 50	3. 55	7. 30	12. 30	0. 44	
22	11. 13. 15	6. 15	6. 7. 25	3. 33	6. 13	12. 22	0. 25	
25	11. 26. 51	5. 20	6. 4. 15	2. 55	4. 22	12. 11	0. 5	
28	0. 11. 45	3. 59	6. 0. 57	2. 2	2. 14	12. 0	23. 37	
30	0. 22. 27	2. 51	5. 29. 3	1. 22	0. 52	11. 54	23. 25	
♀ VENUS.								
1	10. 15. 43	2. 57 S	6. 17. 52	4. 54 S	11. 33 S	12. 58	2. 18	
7	10. 25. 12	3. 11	6. 20. 27	5. 50	13. 23	13. 7	2. 5	
13	11. 4. 42	3. 20	6. 21. 58	6. 44	14. 48	13. 11	1. 48	
19	11. 14. 13	3. 24	6. 22. 12	7. 30	15. 36	13. 11	1. 26	
25	11. 23. 45	3. 21	6. 21. 2	8. 4	15. 40	13. 5	0. 59	
♂ MARS. ♂ 24 ^d . 3 ^h .								
1	5. 20. 32	1. 34 N	5. 15. 53	0. 59 N	6. 28 N	11. 10	0. 30	
7	5. 23. 11	1. 31	5. 19. 44	0. 57	4. 56	11. 24	0. 22	
13	5. 25. 50	1. 28	5. 23. 36	0. 55	3. 23	11. 38	0. 15	
19	5. 28. 30	1. 25	5. 27. 28	0. 53	1. 49	11. 52	0. 8	
25	6. 1. 11	1. 21	6. 1. 21	0. 51	0. 14 N	12. 6	0. 0	
♃ JUPITER.								
1	10. 19. 19	0. 51 S	10. 14. 44	1. 3 S	17. 26 S	21. 10	10. 29	
7	10. 19. 51	0. 52	10. 14. 7	1. 3	17. 37	21. 8	10. 5	
13	10. 20. 23	0. 53	10. 13. 35	1. 3	17. 46	21. 5	9. 41	
19	10. 20. 55	0. 53	10. 13. 9	1. 3	17. 53	21. 4	9. 18	
25	10. 21. 27	0. 54	10. 12. 49	1. 3	17. 59	21. 2	8. 55	
♄ SATURN.								
1	5. 5. 20	1. 42 N	5. 5. 37	1. 32 N	10. 53 N	10. 32	23. 49	
7	5. 5. 33	1. 43	5. 6. 23	1. 33	10. 37	10. 35	23. 30	
13	5. 5. 46	1. 43	5. 7. 8	1. 33	10. 21	10. 38	23. 12	
19	5. 5. 58	1. 44	5. 7. 52	1. 34	10. 5	10. 41	22. 53	
25	5. 6. 11	1. 44	5. 8. 36	1. 35	9. 49	10. 43	22. 34	
♅ GEORGIAN.								
1	10. 12. 48	0. 40 S	10. 11. 30	0. 42 S	18. 1 S	20. 57	10. 15	
11	10. 12. 55	0. 40	10. 11. 11	0. 42	18. 6	20. 55	9. 38	
21	10. 13. 1	0. 40	10. 10. 55	0. 42	18. 10	20. 54	9. 1	

Days of the Week.	Days of the Month.	THE MOON'S			
		Longitude.		Latitude.	
		Noon.	Midnight.	Noon.	Midnight.
		S. D. M. S.	S. D. M. S.	D. M. S.	D. M. S.
Th.	1	3. 5. 25. 43	3. 12. 31. 23	3. 48. 42 S	3. 20. 1 S
F.	2	3. 19. 36. 1	3. 26. 39. 16	2. 48. 20	2. 14. 11
Sa.	3	4. 3. 40. 47	4. 10. 40. 11	1. 38. 8	1. 0. 49 S
Sun.	4	4. 17. 37. 9	4. 24. 31. 18	0. 22. 49 S	0. 15. 14 N
M.	5	5. 1. 22. 19	5. 8. 9. 52	0. 52. 46 N	1. 29. 12
Tu.	6	5. 14. 53. 41	5. 21. 33. 31	2. 4. 1	2. 36. 46
W.	7	5. 28. 9. 11	6. 4. 40. 35	3. 7. 3	3. 34. 31
Th.	8	6. 11. 7. 39	6. 17. 30. 25	3. 58. 54	4. 20. 0
F.	9	6. 23. 48. 58	7. 0. 3. 28	4. 37. 41	4. 51. 51
Sa.	10	7. 6. 14. 11	7. 12. 21. 25	5. 2. 27	5. 9. 28
Sun.	11	7. 18. 25. 33	7. 24. 27. 0	5. 12. 58	5. 12. 58
M.	12	8. 0. 26. 15	8. 6. 23. 49	5. 9. 33	5. 2. 48
Tu.	13	8. 12. 20. 17	8. 18. 16. 11	4. 52. 50	4. 39. 44
W.	14	8. 24. 12. 9	9. 0. 8. 46	4. 23. 38	4. 4. 41
Th.	15	9. 6. 6. 41	9. 12. 6. 28	3. 43. 1	3. 18. 48
F.	16	9. 18. 8. 44	9. 24. 14. 1	2. 52. 12	2. 23. 27
Sa.	17	10. 0. 22. 53	10. 6. 35. 49	1. 52. 47	1. 20. 27
Sun.	18	10. 12. 53. 16	10. 19. 15. 34	0. 46. 47 N	0. 12. 8 N
M.	19	10. 25. 43. 0	11. 2. 15. 44	0. 23. 7 S	0. 58. 30 S
Tu.	20	11. 8. 53. 52	11. 15. 37. 22	1. 33. 33	2. 7. 43
W.	21	11. 22. 26. 4	11. 29. 19. 43	2. 40. 29	3. 11. 16
Th.	22	0. 6. 17. 54	0. 13. 20. 8	3. 39. 31	4. 4. 41
F.	23	0. 20. 25. 50	0. 27. 34. 22	4. 26. 17	4. 43. 52
Sa.	24	1. 4. 45. 0	1. 11. 57. 4	4. 57. 4	5. 5. 37
Sun.	25	1. 19. 9. 50	1. 26. 22. 38	5. 9. 20	5. 8. 9
M.	26	2. 3. 34. 51	2. 10. 45. 57	5. 2. 7	4. 51. 21
Tu.	27	2. 17. 55. 29	2. 25. 3. 3	4. 36. 3	4. 16. 31
W.	28	3. 2. 8. 22	3. 9. 11. 15	3. 53. 9	3. 26. 23
Th.	29	3. 16. 11. 33	3. 23. 9. 10	2. 56. 40	2. 24. 30
F.	30	4. 0. 4. 5	4. 6. 56. 17	1. 50. 25	1. 14. 58

Days of the Month.		THE MOON'S					
		Age.	Pass. Mer.	Right Ascension.		Declination.	
				Noon.	Midnight.	Noon.	Midnight.
				D. M. S.	D. M. S.	D. M. S.	D. M. S.
1	26	20.32		95. 44. 55	103. 16. 48	19. 32. 23 N	19. 33. 0 N
2	27	21.30		110. 47. 13	118. 14. 9	19. 14. 59	18. 38. 48
3	28	22.26		125. 35. 42	132. 50. 19	17. 45. 22	16. 35. 58
4	29	23.19		139. 56. 51	146. 54. 36	15. 12. 13	13. 35. 56
5	1	6		153. 43. 16	160. 22. 55	11. 49. 4	9. 53. 38
6	2	0.10		166. 53. 56	173. 16. 59	7. 51. 38	5. 45. 2
7	3	0.59		179. 32. 53	185. 42. 37	3. 35. 42 N	1. 25. 18 N
8	4	1.45		191. 47. 13	197. 47. 46	0. 44. 33 S	2. 52. 20 S
9	5	2.31		203. 45. 21	209. 41. 0	4. 56. 45	6. 56. 38
10	6	3.16		215. 35. 45	221. 30. 33	8. 50. 54	10. 38. 31
11	7	4. 1		227. 26. 16	233. 23. 38	12. 18. 34	13. 50. 14
12	8	4. 47		239. 23. 18	245. 25. 48	15. 12. 43	16. 25. 15
13	9	5. 34		251. 31. 30	257. 40. 38	17. 27. 9	18. 17. 48
14	10	6. 21		263. 53. 15	270. 9. 17	18. 56. 34	19. 22. 54
15	11	7. 10		276. 28. 31	282. 50. 37	19. 36. 20	19. 36. 28
16	12	7. 59		289. 15. 9	295. 41. 36	19. 23. 2	18. 55. 53
17	13	8. 49		302. 9. 28	308. 38. 17	18. 15. 0	17. 20. 29
18	14	9. 39		315. 7. 38	321. 37. 12	16. 12. 40	14. 52. 2
19	15	10. 29		328. 6. 46	334. 36. 17	13. 19. 16	11. 35. 17
20	16	11. 19		341. 5. 56	347. 35. 59	9. 41. 8	7. 38. 5
21	17	12. 10		354. 6. 54	0. 39. 16	5. 27. 38	3. 11. 28 S
22	18	13. 1		7. 13. 47	13. 51. 14	0. 51. 24 S	1. 30. 37 N
23	19	13. 53		20. 32. 25	27. 18. 8	3. 52. 28 N	6. 11. 57
24	20	14. 46		34. 9. 4	41. 5. 50	8. 26. 50	10. 34. 54
25	21	15. 42		48. 8. 46	55. 17. 57	12. 33. 54	14. 21. 45
26	22	16. 39		62. 33. 7	69. 53. 41	15. 56. 26	17. 16. 13
27	23	17. 37		77. 18. 37	84. 46. 35	18. 19. 41	19. 5. 41
28	24	18. 36		92. 15. 55	99. 44. 49	19. 33. 25	19. 42. 33
29	25	19. 33		107. 11. 24	114. 33. 52	19. 33. 12	19. 5. 50
30	26	20. 29		121. 50. 39	129. 0. 29	18. 21. 16	17. 20. 41

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Days of the Week.	Days of the Month.	THE MOON'S				Proportional Logarithm.	
		Semidiameter.		Hor. Parallax.			
		Noon.	Midnight.	Noon.	Midnight.	Noon.	Midn.
		M. S.	M. S.	M. S.	M. S.		
Th.	1	16. 8	16. 7	59. 14	59. 10	4827	4832
F.	2	16. 6	16. 4	59. 5	58. 59	4838	4845
Sa.	3	16. 2	15. 59	58. 51	58. 41	4855	4868
Sun.	4	15. 56	15. 53	58. 29	58. 16	4882	4899
M.	5	15. 49	15. 44	58. 1	57. 45	4917	4937
Tu.	6	15. 40	15. 34	57. 28	57. 9	4959	4983
W.	7	15. 29	15. 24	56. 50	56. 31	5007	5031
Th.	8	15. 19	15. 14	56. 12	55. 54	5055	5079
F.	9	15. 9	15. 4	55. 36	55. 19	5102	5124
Sa.	10	15. 0	14. 57	55. 4	54. 50	5144	5162
Sun.	11	14. 53	14. 51	54. 38	54. 29	5178	5190
M.	12	14. 49	14. 47	54. 21	54. 16	5201	5207
Tu.	13	14. 46	14. 46	54. 13	54. 13	5211	5211
W.	14	14. 47	14. 49	54. 16	54. 21	5207	5201
Th.	15	14. 51	14. 54	54. 29	54. 39	5190	5177
F.	16	14. 57	15. 1	54. 51	55. 6	5161	5141
Sa.	17	15. 6	15. 10	55. 23	55. 41	5119	5095
Sun.	18	15. 16	15. 22	56. 1	56. 22	5070	5043
M.	19	15. 27	15. 33	56. 43	57. 5	5016	4988
Tu.	20	15. 39	15. 45	57. 26	57. 48	4961	4933
W.	21	15. 50	15. 56	58. 8	58. 27	4908	4885
Th.	22	16. 0	16. 4	58. 44	58. 59	4864	4845
F.	23	16. 8	16. 11	59. 12	59. 22	4830	4817
Sa.	24	16. 13	16. 14	59. 30	59. 35	4808	4801
Sun.	25	16. 15	16. 15	59. 38	59. 38	4798	4798
M.	26	16. 14	16. 13	59. 36	59. 32	4800	4805
Tu.	27	16. 12	16. 10	59. 27	59. 20	4811	4820
W.	28	16. 8	16. 5	59. 11	59. 2	4831	4842
Th.	29	16. 2	15. 59	58. 52	58. 41	4854	4868
F.	30	15. 56	15. 53	58. 29	58. 17	4882	4897

Stars' Names.	Days	Noon.		III ^h .		VI ^h .		IX ^h .		Midnight.		XV ^h .		XVIII ^h .		XXI ^h .	
		D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.
α Arietis.	18	82.	24. 7	80.	51. 57	79.	19. 29	77.	46. 45	76.	13. 45	74.	40. 29	73.	6. 57	71.	33. 11
	19	69.	59. 9	68.	24. 52	66.	50. 22	65.	15. 39	63.	40. 43	62.	5. 34	60.	30. 15	58.	54. 46
	20	57.	19. 8	55.	43. 21	54.	7. 27	52.	31. 29	50.	55. 29	49.	19. 25	47.	43. 23	46.	7. 25
	21	44.	31. 35	42.	55. 54	41.	20. 26	39.	45. 14	38.	10. 19	-	-	-	-	-	-
Aldebaran.	21	-	-	-	-	-	-	-	-	67.	55. 11	66.	10. 57	64.	26. 28	62.	41. 45
	22	60.	56. 48	59.	11. 37	57.	26. 13	55.	40. 37	53.	54. 49	52.	8. 49	50.	22. 38	48.	36. 17
	23	46.	49. 46	45.	3. 6	43.	16. 17	41.	20. 21	39.	42. 17	37.	55. 7	36.	7. 50	34.	20. 28
	24	32.	33. 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pollux.	24	76.	52. 36	75.	6. 33	73.	20. 27	71.	34. 21	69.	48. 13	68.	2. 6	66.	15. 59	64.	29. 54
	25	62.	43. 52	60.	57. 53	59.	11. 58	57.	26. 8	55.	40. 25	53.	54. 48	52.	9. 20	50.	24. 1
	26	48.	38. 53	46.	53. 55	45.	9. 11	43.	24. 41	41.	40. 28	39.	56. 33	38.	12. 58	36.	29. 44
	27	34.	46. 53	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Regulus.	27	69.	39. 59	67.	53. 8	66.	6. 23	64.	19. 46	62.	33. 15	60.	46. 51	59.	0. 34	57.	14. 25
	28	55.	28. 23	53.	42. 28	51.	56. 42	50.	11. 2	48.	25. 31	-	-	-	-	-	-
The Sun.	25	-	-	-	-	115.	35. 25	113.	55. 36	112.	15. 52	110.	36. 12	108.	56. 37	107.	17. 8
	26	118.	55. 14	117.	15. 18	103.	58. 27	100.	40. 12	99.	1. 14	97.	22. 23	95.	43. 40	94.	5. 4
	27	105.	37. 44	103.	58. 27	90.	48. 14	87.	31. 55	85.	53. 58	84.	16. 9	82.	38. 28	81.	0. 56
	28	92.	26. 35	90.	48. 14	89.	10. 1	87.	31. 55	85.	53. 58	84.	16. 9	82.	38. 28	81.	0. 56
	29	79.	23. 33	77.	46. 19	76.	9. 14	74.	32. 19	72.	55. 32	71.	18. 54	69.	42. 26	68.	6. 6
	30	66.	29. 57	64.	53. 58	63.	18. 8	61.	42. 29	60.	6. 59	58.	31. 40	56.	56. 30	55.	21. 32
O. 1	53.	46. 43	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

DISTANCES of the Moon's Centre from the Sun, and from STARS *WEST* of her.

Stars' Names.	Days	Noon.		III ^b .		VI ^b .		IX ^b .		Midnight.		XV ^b .		XVIII ^b .		XXI ^b .	
		D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.
Aldebaran.	1	27. 57. 2	29. 43. 31	37. 43. 31	31. 29. 58	43. 20. 27	42. 20. 27	33. 16. 24	33. 16. 24	35. 2. 48	35. 2. 48	36. 49. 10	38. 35. 29	38. 35. 29	40. 21. 44	40. 21. 44	40. 21. 44
	2	42. 7. 58	43. 54. 7	45. 40. 13	45. 40. 13	47. 26. 14	47. 26. 14	47. 26. 14	47. 26. 14	49. 12. 10	49. 12. 10	50. 58. 1	52. 43. 46	52. 43. 46	54. 29. 25	54. 29. 25	54. 29. 25
	3	56. 14. 58	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
The Sun.	9	- - -	39. 28. 30	39. 28. 30	40. 54. 36	42. 20. 27	42. 20. 27	43. 46. 2	43. 46. 2	43. 46. 2	43. 46. 2	45. 11. 23	46. 36. 30	46. 36. 30	48. 1. 23	48. 1. 23	48. 1. 23
	10	49. 26. 1	50. 50. 25	50. 50. 25	52. 14. 37	53. 38. 37	53. 38. 37	55. 2. 23	55. 2. 23	55. 2. 23	55. 2. 23	56. 25. 58	57. 49. 21	57. 49. 21	59. 12. 34	59. 12. 34	59. 12. 34
	11	60. 35. 36	61. 58. 27	61. 58. 27	63. 21. 9	64. 43. 42	64. 43. 42	66. 6. 6	66. 6. 6	66. 6. 6	66. 6. 6	67. 28. 22	68. 50. 31	68. 50. 31	70. 12. 33	70. 12. 33	70. 12. 33
	12	71. 34. 28	72. 56. 16	72. 56. 16	74. 18. 1	75. 39. 40	75. 39. 40	77. 1. 14	77. 1. 14	77. 1. 14	77. 1. 14	78. 22. 44	79. 44. 13	79. 44. 13	81. 5. 39	81. 5. 39	81. 5. 39
	13	82. 27. 2	83. 48. 23	83. 48. 23	85. 9. 45	86. 31. 7	86. 31. 7	87. 52. 28	87. 52. 28	87. 52. 28	87. 52. 28	89. 13. 50	90. 35. 15	90. 35. 15	91. 56. 42	91. 56. 42	91. 56. 42
	14	93. 18. 11	94. 39. 43	94. 39. 43	96. 1. 20	97. 23. 1	97. 23. 1	98. 44. 47	98. 44. 47	98. 44. 47	98. 44. 47	100. 6. 39	101. 28. 38	101. 28. 38	102. 50. 44	102. 50. 44	102. 50. 44
	15	104. 12. 57	105. 35. 17	105. 35. 17	106. 57. 47	108. 20. 26	108. 20. 26	109. 43. 14	109. 43. 14	109. 43. 14	109. 43. 14	111. 6. 12	112. 29. 23	112. 29. 23	113. 52. 44	113. 52. 44	113. 52. 44
	16	115. 16. 16	116. 40. 0	116. 40. 0	118. 3. 57	119. 28. 8	119. 28. 8	120. 52. 31	120. 52. 31	120. 52. 31	120. 52. 31	- - -	- - -	- - -	- - -	- - -	- - -
	13	- - -	- - -	- - -	- - -	- - -	- - -	57. 7. 51	57. 7. 51	57. 7. 51	57. 7. 51	58. 35. 47	60. 3. 48	60. 3. 48	61. 31. 51	61. 31. 51	61. 31. 51
	14	62. 59. 58	64. 28. 9	64. 28. 9	65. 56. 27	67. 24. 50	67. 24. 50	68. 53. 18	68. 53. 18	68. 53. 18	68. 53. 18	70. 21. 53	71. 50. 37	71. 50. 37	73. 19. 28	73. 19. 28	73. 19. 28
Spica π .	15	74. 48. 27	76. 17. 34	76. 17. 34	77. 46. 51	79. 16. 18	79. 16. 18	80. 45. 54	80. 45. 54	80. 45. 54	80. 45. 54	- - -	- - -	- - -	- - -	- - -	- - -
	15	- - -	- - -	- - -	- - -	- - -	- - -	35. 33. 3	35. 33. 3	35. 33. 3	35. 33. 3	36. 59. 50	38. 27. 0	38. 27. 0	39. 54. 34	39. 54. 34	39. 54. 34
	16	41. 22. 31	42. 50. 50	42. 50. 50	44. 19. 32	45. 48. 36	45. 48. 36	47. 18. 1	47. 18. 1	47. 18. 1	47. 18. 1	48. 47. 47	50. 17. 54	50. 17. 54	51. 48. 21	51. 48. 21	51. 48. 21
	17	53. 19. 10	54. 50. 19	54. 50. 19	56. 21. 48	57. 53. 38	57. 53. 38	59. 25. 49	59. 25. 49	59. 25. 49	59. 25. 49	60. 58. 21	62. 31. 13	62. 31. 13	64. 4. 26	64. 4. 26	64. 4. 26
	18	65. 38. 0	67. 11. 55	67. 11. 55	68. 46. 10	70. 20. 46	70. 20. 46	71. 55. 43	71. 55. 43	71. 55. 43	71. 55. 43	73. 31. 1	75. 6. 39	75. 6. 39	76. 42. 38	76. 42. 38	76. 42. 38
	19	78. 18. 58	79. 55. 38	79. 55. 38	81. 32. 39	83. 10. 0	83. 10. 0	84. 47. 41	84. 47. 41	84. 47. 41	84. 47. 41	86. 25. 42	88. 4. 3	88. 4. 3	89. 42. 43	89. 42. 43	89. 42. 43
	20	91. 21. 43	93. 1. 2	93. 1. 2	94. 40. 39	96. 20. 35	96. 20. 35	98. 0. 49	98. 0. 49	98. 0. 49	98. 0. 49	99. 41. 20	101. 22. 8	101. 22. 8	103. 3. 14	103. 3. 14	103. 3. 14
	21	104. 44. 35	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
	21	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
Antares.	15	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
	16	41. 22. 31	42. 50. 50	42. 50. 50	44. 19. 32	45. 48. 36	45. 48. 36	47. 18. 1	47. 18. 1	47. 18. 1	47. 18. 1	48. 47. 47	50. 17. 54	50. 17. 54	51. 48. 21	51. 48. 21	51. 48. 21

Stars' Names.	Days	Noon.		III ^h .		VI ^h .		IX ^h .		Midnight.		XV ^h .		XVIII ^h .		XXI ^h .	
		D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.
α Aquilæ.	21	59. 56. 13	61. 24. 0	62. 52. 27	64. 21. 33	65. 51. 17	67. 21. 35	68. 52. 26	70. 23. 48	71. 55. 39	73. 27. 56	75. 0. 38	76. 33. 42	78. 7. 6	79. 35. 11	81. 8. 37	83. 42. 51
	22	50. 17. 50	51. 53. 31	53. 29. 50	55. 6. 44	56. 44. 10	58. 22. 2	60. 0. 21	61. 39. 4	63. 18. 8	64. 57. 32	66. 37. 12	68. 17. 8	69. 57. 16	71. 36. 46	73. 16. 16	75. 0. 21
Fomalhaut.	23	62. 7. 7	63. 44. 57	65. 23. 4	67. 1. 26	68. 40. 2	70. 18. 48	71. 57. 43	73. 36. 46	75. 15. 55	76. 55. 9	78. 34. 26	80. 13. 45	81. 53. 4	83. 32. 13	85. 11. 16	86. 50. 13
	24	75. 15. 55	76. 55. 9	78. 34. 26	80. 13. 45	81. 53. 4	83. 32. 13	85. 11. 16	86. 50. 13	88. 29. 37	90. 8. 37	91. 48. 36	93. 28. 36	95. 8. 36	96. 48. 36	98. 28. 36	100. 8. 36
α Pegasi.	25	44. 52. 34	46. 32. 13	48. 12. 11	49. 52. 26	51. 32. 54	53. 13. 30	54. 54. 16	56. 35. 9	58. 15. 42	59. 55. 57	61. 35. 57	63. 15. 57	64. 55. 57	66. 35. 57	68. 15. 57	69. 55. 57
	26	58. 16. 7	59. 57. 8	61. 38. 12	63. 19. 18	65. 0. 24	66. 41. 30	68. 22. 35	70. 3. 37	71. 44. 36	73. 25. 41	75. 6. 46	76. 47. 51	78. 28. 56	80. 9. 61	81. 50. 66	83. 31. 71
α Arietis.	27	38. 43. 37	40. 28. 25	42. 13. 5	43. 57. 37	45. 41. 59	47. 26. 13	49. 10. 17	50. 54. 13	52. 37. 59	54. 21. 36	56. 5. 4	57. 48. 22	59. 31. 31	61. 14. 31	62. 57. 21	64. 40. 2
	28	52. 37. 59	54. 21. 36	56. 5. 4	57. 48. 22	59. 31. 31	61. 14. 31	62. 57. 21	64. 40. 2	66. 22. 33	68. 4. 33	70. 16. 33	71. 28. 33	73. 10. 33	74. 22. 33	76. 4. 33	77. 16. 33
Aldebaran.	29	66. 22. 33	68. 4. 33	70. 16. 33	71. 28. 33	73. 10. 33	74. 22. 33	76. 4. 33	77. 16. 33	78. 28. 33	80. 10. 33	81. 22. 33	82. 34. 33	84. 16. 33	85. 28. 33	87. 10. 33	88. 22. 33
	30	78. 28. 33	80. 10. 33	81. 22. 33	82. 34. 33	84. 16. 33	85. 28. 33	87. 10. 33	88. 22. 33	90. 4. 33	91. 16. 33	92. 28. 33	94. 10. 33	95. 22. 33	96. 34. 33	98. 16. 33	99. 28. 33
O. 1	31	99. 28. 33	101. 10. 33	102. 22. 33	103. 34. 33	105. 16. 33	106. 28. 33	108. 10. 33	109. 22. 33	111. 4. 33	112. 16. 33	113. 28. 33	115. 10. 33	116. 22. 33	118. 4. 33	119. 16. 33	121. 28. 33
	32	121. 28. 33	123. 10. 33	124. 22. 33	125. 34. 33	127. 16. 33	128. 28. 33	130. 10. 33	131. 22. 33	133. 4. 33	134. 16. 33	135. 28. 33	137. 10. 33	138. 22. 33	140. 4. 33	141. 16. 33	143. 28. 33

CONFIGURATIONS of the SATellites of JUPITER,
at VIII o'Clock in the *Evening*.

1	•4	3•	1 6 2	○	
2		•4	•3	○	1• •2
3			•4	•1	○ 2• 3○
4			2•	○ 1•	•3 4○
5				○ •2	•4 •3 •1○
6			1•	○	3• 2• •4
7			3• 2•	○ •1	•4
8		3•	•2 1•	○	•4
9		•4		○	1• 2• 4•
10			•1 •3	○ 2•	4•
11			2•	○ 1•	•3 4•
12	•1○			○ 4•	3• •2○
13	1.●		4•	○	3• 2•
14		4•	3 6 2	○ •1	
15		4•	3• •2 1•	○	
16	4•		•3	○	•1 •2
17	•4		•1 •3	○ 2•	
18		•4	2•	○	1• •3
19		•4	•1 •2	○	•3
20			•4	○	2 6 3 1.●
21	3.●		2•	○ •1 •4	
22		3• •2	1•	○	•4
23		•3		○ 1 6 2	•4
24			•1 •3	○ 2•	•4
25			2•	○ 1• •3	4•
26			1 6 2	○	•3 4•
27				○ 1•	•2 3• 4•
28	•1○ 2.●			○	4• 3.●
29	4.●		3• •2 1•	○	
30		•3	4•	○ 2 6 1	

Days of the Week.	Days of the Month.	<i>Sundays, and other remarkable Days.</i>	<i>Phases of the MOON.</i>
			<div>D. H. M.</div> <div>● New Moon 5. 9. 44</div> <div>☾ First Quarter . . . 13. 11. 59</div> <div>○ Full Moon 20. 20. 44</div> <div>☾ Last Quarter . . . 27. 12. 2</div>
Sa.	1	Remigius.	<i>Other Phenomena.</i>
			<div>D. H. M.</div> <div>2. 0. - ☽ α Ω.</div> <div>2. 11. - ☽ ε Ω.</div> <div>2. 22. - ☽ η.</div> <div>3. 10. - ☽ σ Ω.</div> <div>5. - - - ☽ Stationary.</div> <div>8. 16. - ☽ γ ☾.</div> <div>9. 4. - ☽ ψ ☾.</div> <div>9. 20. - ☽ φ Oph.</div> <div>10. - - - ☾ Stationary.</div> <div>11. 22. - ☽ 2 μ ♀.</div> <div>13. 4. - ☽ δ ♀.</div> <div>13. 17. - ☽ η ♀.</div> <div>17. 20. - ☽ φ ☾.</div> <div>17. 22. - ☽ ζ ♀.</div> <div>17. 23. - ☽ 1 γ ♀.</div> <div>20. 14. - ☽ ν ♀.</div> <div>21. - - - ☽ Station. near 21 ♀.</div> <div>21. 10. - ☽ 2 ξ Ceti.</div> <div>21. 17. - ☽ μ Ceti.</div> <div>22. 12. - ☽ f ♀.</div> <div>22. 21. - ☽ 2 ♀.</div> <div>23. 8. - ☽ γ ♀.</div> <div>23. 9. - ☽ 1 δ ♀.</div> <div>23. 9. - ☽ 2 δ ♀.</div> <div>23. 14. - ☽ α ♀.</div> <div>23. 16. 3 ☾ enters ♀.</div> <div>25. 10. - ☽ ν ♀.</div> <div>26. 0. - ☽ ζ ♀.</div> <div>26. 10. - ☽ δ ♀.</div> <div>27. 17. - ☽ δ ☾.</div> <div>29. - - - ☽ Stationary.</div> <div>29. 6. - ☽ α Ω.</div> <div>29. 17. - ☽ ε Ω.</div> <div>30. 9. - ☽ η.</div> <div>30. 16. - ☽ σ Ω.</div>
Sun.	2	18th Sunday after Trinity.	
M.	3		
Tu.	4		
W.	5		
Th.	6	Faith.	
F.	7		
Sa.	8		
Sun.	9	19th Sunday after Trinity.	
		[St. Denys.	
M.	10	Oxf. and Camb. T. beg.	
Tu.	11		
W.	12		
Th.	13	Transl. of K. Edw. Conf.	
F.	14		
Sa.	15		
Sun.	16	20th Sunday after Trinity.	
M.	17	Ethelreda.	
Tu.	18	St. Luke.	
W.	19		
Th.	20		
F.	21		
Sa.	22		
Sun.	23	21st Sunday after Trinity.	
M.	24		
Tu.	25	Crispin.	
W.	26		
Th.	27		
F.	28	St. Simon and St. Jude.	
Sa.	29		
Sun.	30	22d Sunday after Trinity.	
M.	31		

Days of the Week.	Days of the Month.	THE SUN'S				Diff.	Equation of Time.	Diff.
		Longitude.	Rt. Ascen. in Time.	Declin. South.	Sub. from app. Time.			
		S. D. M. S.	H. M. S.	D. M. S.	M. S.	M. S.	S.	
Sa.	1	6. 7. 32. 20	12. 27. 41. 3	2. 59. 38	23. 20 23. 18 23. 15 23. 12 23. 9	10. 9. 3	19, 0 18, 7 18, 3 18, 0 17, 6	
Sun.	2	6. 8. 31. 25	12. 31. 18. 8	3. 22. 58		10. 28. 3		
M.	3	6. 9. 30. 33	12. 34. 56. 6	3. 46. 16		10. 47. 0		
Tu.	4	6. 10. 29. 43	12. 38. 34. 8	4. 9. 31		11. 5. 3		
W.	5	6. 11. 28. 56	12. 42. 13. 3	4. 32. 43		11. 23. 3		
Th.	6	6. 12. 28. 10	12. 45. 52. 1	4. 55. 52	23. 5 23. 2 22. 56 22. 52 22. 47	11. 40. 9	17, 3 16, 9 16, 4 16, 1 15, 6	
F.	7	6. 13. 27. 26	12. 49. 31. 4	5. 18. 57		11. 58. 2		
Sa.	8	6. 14. 26. 45	12. 53. 11. 0	5. 41. 59		12. 15. 1		
Sun.	9	6. 15. 26. 5	12. 56. 51. 0	6. 4. 55		12. 31. 5		
M.	10	6. 16. 25. 27	13. 0. 31. 5	6. 27. 47		12. 47. 6		
Tu.	11	6. 17. 24. 51	13. 4. 12. 5	6. 50. 34	22. 41 22. 35 22. 28 22. 22 22. 15	13. 3. 2	15, 1 14, 6 14, 2 13, 6 13, 1	
W.	12	6. 18. 24. 17	13. 7. 53. 9	7. 13. 15		13. 18. 3		
Th.	13	6. 19. 23. 45	13. 11. 35. 7	7. 35. 50		13. 32. 9		
F.	14	6. 20. 23. 14	13. 15. 18. 1	7. 58. 18		13. 47. 1		
Sa.	15	6. 21. 22. 45	13. 19. 1. 0	8. 20. 40		14. 0. 7		
Sun.	16	6. 22. 22. 17	13. 22. 44. 4	8. 42. 55	22. 7 21. 59 21. 51 21. 42 21. 34	14. 13. 8	12, 5 12, 0 11, 4 10, 8 10, 2	
M.	17	6. 23. 21. 52	13. 26. 28. 4	9. 5. 2		14. 26. 3		
Tu.	18	6. 24. 21. 28	13. 30. 12. 9	9. 27. 1		14. 38. 3		
W.	19	6. 25. 21. 7	13. 33. 58. 0	9. 48. 52		14. 49. 7		
Th.	20	6. 26. 20. 47	13. 37. 43. 7	10. 10. 34		15. 0. 5		
F.	21	6. 27. 20. 29	13. 41. 30. 1	10. 32. 8	21. 24 21. 14 21. 4 20. 54 20. 43	15. 10. 7	9, 5 8, 8 8, 1 7, 4 6, 7	
Sa.	22	6. 28. 20. 13	13. 45. 17. 1	10. 53. 32		15. 20. 2		
Sun.	23	6. 29. 19. 59	13. 49. 4. 8	11. 14. 46		15. 29. 0		
M.	24	7. 0. 19. 47	13. 52. 53. 2	11. 35. 50		15. 37. 1		
Tu.	25	7. 1. 19. 37	13. 56. 42. 4	11. 56. 44		15. 44. 5		
W.	26	7. 2. 19. 30	14. 0. 32. 2	12. 17. 27	20. 32 20. 20 20. 8 19. 56 19. 43	15. 51. 2	6, 0 5, 1 4, 4 3, 6 2, 9	
Th.	27	7. 3. 19. 25	14. 4. 22. 8	12. 37. 59		15. 57. 2		
F.	28	7. 4. 19. 23	14. 8. 14. 2	12. 58. 19		16. 2. 3		
Sa.	29	7. 5. 19. 23	14. 12. 6. 4	13. 18. 27		16. 6. 7		
Sun.	30	7. 6. 19. 25	14. 15. 59. 3	13. 38. 23		16. 10. 3		
M.	31	7. 7. 19. 29	14. 19. 53. 0	13. 58. 6	19. 29	16. 13. 2	2, 0	

Days	Time of ☉'s Semidiam. passing Merid.	THE SUN'S			Place of the ☿'s Node.
	M. S.	Semi- diameter.	Hourly Motion.	Logar. Distance.	S. D. M.
1	1. 4. 1	16. 0. 9	2. 27. 7	0. 000219	4. 19. 13
7	1. 4. 4	16. 2. 6	2. 28. 2	9. 999474	4. 18. 54
13	1. 4. 8	16. 4. 3	2. 28. 7	9. 998712	4. 18. 35
19	1. 5. 3	16. 5. 9	2. 29. 2	9. 997959	4. 18. 16
25	1. 5. 9	16. 7. 5	2. 29. 7	9. 997247	4. 17. 56

ECLIPSES OF THE SATELLITES OF JUPITER.
MEAN TIME.

I. Satellite.		II. Satellite.		III. Satellite.	
<i>Emersions.</i>		<i>Emersions.</i>			
Days.	H. M. S.	Days.	H. M. S.	Days.	H. M. S.
1	0. 55. 27	1	23. 51. 45	5	13. 43. 10 Im.
2	19. 24. 20	5	13. 9. 33	5	17. 16. 11 E.
4	13. 53. 19	9	2. 27. 23	12	17. 45. 34 Im.
* 6	8. 22. 13	12	15. 45. 13	12	21. 18. 24 E.
8	2. 51. 12	16	5. 3. 7	19	21. 47. 35 Im.
9	21. 20. 6	19	18. 21. 0	20	1. 20. 13 E.
11	15. 49. 5	* 23	7. 38. 58	27	1. 50. 2 Im.
* 13	10. 18. 0	26	20. 56. 56	27	5. 22. 25 E.
15	4. 46. 59	30	10. 14. 56		
16	23. 15. 54				
18	17. 44. 53				
20	12. 13. 48				
* 22	6. 42. 48				
24	1. 11. 43				
25	19. 40. 43				
27	14. 9. 37				
* 29	8. 38. 37				
31	3. 7. 32				
				IV. Satellite.	
				* 16	8. 31. 25 Im.
				16	13. 15. 8 E.

THE PLANETS'								
Days	Heliocentric		Geocentric		Declin.	Rt. Asc.	Passage	
	Long.	Lat.	Long.	Lat.		in Time.	Merid.	
	S. D. M.	D. M.	S. D. M.	D. M.	D. M.	H. M.	H. M.	
♿	MERCURY.					Gr. Elong. 12 ^d .		
1	0. 28. 1	2. 13 S	5. 28. 16	1. 18 S	0. 15 S	11. 52	23. 20	
4	1. 15. 32	0. 6 S	5. 26. 50	0. 2 S	1. 14 N	11. 48	23. 7	
7	2. 4. 1	2. 8 N	5. 26. 57	0. 47 N	1. 56	11. 50	22. 59	
10	2. 22. 56	4. 11	5. 28. 35	1. 24	1. 51	11. 57	22. 57	
13	3. 11. 38	5. 46	6. 1. 28	1. 48	1. 4 N	12. 8	22. 58	
16	3. 29. 31	6. 42	6. 5. 16	2. 0	0. 16 S	12. 22	23. 1	
19	4. 16. 9	7. 0	6. 9. 39	2. 2	1. 57	12. 39	23. 7	
22	5. 1. 21	6. 46	6. 14. 23	1. 57	3. 53	12. 56	23. 13	
25	5. 15. 9	6. 8	6. 19. 18	1. 47	5. 55	13. 14	23. 19	
28	5. 27. 41	5. 16	6. 24. 17	1. 33	7. 59	13. 32	23. 26	
31	6. 9. 8	4. 15	6. 29. 16	1. 16	10. 3	13. 51	23. 33	
♀	VENUS.					Inf. ♂ 8 ^d . 0 ^h .		
1	0. 3. 17	3. 13 S	6. 18. 31	8. 14 S	14. 51 S	12. 55	0. 28	
7	0. 12. 51	3. 0	6. 15. 5	7. 53	13. 13	12. 43	23. 48	
13	0. 22. 25	2. 42	6. 11. 29	7. 2	11. 1	12. 31	23. 14	
19	1. 2. 0	2. 19	6. 8. 31	5. 47	8. 42	12. 22	22. 44	
25	1. 11. 36	1. 53	6. 6. 48	4. 22	6. 42	12. 18	22. 18	
♂	MARS.							
1	6. 3. 52	1. 18 N	6. 5. 15	0. 48 N	1. 21 S	12. 21	23. 52	
7	6. 6. 34	1. 14	6. 9. 11	0. 46	2. 56	12. 35	23. 44	
13	6. 9. 17	1. 10	6. 13. 7	0. 44	4. 31	12. 49	23. 37	
19	6. 12. 1	1. 6	6. 17. 4	0. 41	6. 5	13. 4	23. 29	
25	6. 14. 46	1. 1	6. 21. 3	0. 38	7. 38	13. 19	23. 21	
♃	JUPITER.							
1	10. 21. 59	0. 54 S	10. 12. 37	1. 2 S	18. 2 S	21. 2	8. 33	
7	10. 22. 31	0. 55	10. 12. 31	1. 2	18. 3	21. 1	8. 10	
13	10. 23. 3	0. 55	10. 12. 32	1. 1	18. 2	21. 1	7. 48	
19	10. 23. 35	0. 56	10. 12. 41	1. 0	17. 59	21. 2	7. 27	
25	10. 24. 7	0. 56	10. 12. 56	1. 0	17. 54	21. 3	7. 5	
♄	SATURN.							
1	5. 6. 24	1. 44 N	5. 9. 19	1. 36 N	9. 34 N	10. 46	22. 15	
7	5. 6. 36	1. 45	5. 10. 0	1. 36	9. 19	10. 49	21. 56	
13	5. 6. 49	1. 45	5. 10. 40	1. 37	9. 5	10. 51	21. 36	
19	5. 7. 2	1. 46	5. 11. 17	1. 38	8. 51	10. 53	21. 16	
25	5. 7. 14	1. 46	5. 11. 53	1. 39	8. 38	10. 56	20. 56	
♅	GEORGIAN.							
1	10. 13. 8	0. 40 S	10. 10. 43	0. 41 S	18. 13 S	20. 53	8. 24	
11	10. 13. 14	0. 40	10. 10. 36	0. 41	18. 15	20. 53	7. 48	
21	10. 13. 21	0. 40	10. 10. 33	0. 41	18. 16	20. 53	7. 10	

Days of the Week.	Days of the Month.	THE MOON'S							
		Longitude.				Latitude.			
		Noon.		Midnight.		Noon.		Midnight.	
		S. D. M. S.	S. D. M. S.	S. D. M. S.	S. D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.
Sa.	1	4. 13. 45. 47	4. 20. 32. 32	0. 38. 42 S	0. 2. 9 S				
Sun.	2	4. 27. 16. 34	5. 3. 57. 52	0. 34. 9 N	1. 9. 42 N				
M.	3	5. 10. 36. 24	5. 17. 12. 6	1. 44. 0	2. 16. 37				
Tu.	4	5. 23. 44. 54	6. 0. 14. 44	2. 47. 8	3. 15. 12				
W.	5	6. 6. 41. 31	6. 13. 5. 11	3. 40. 30	4. 2. 46				
Th.	6	6. 19. 25. 40	6. 25. 42. 57	4. 21. 48	4. 37. 29				
F.	7	7. 1. 57. 2	7. 8. 8. 0	4. 49. 41	4. 58. 21				
Sa.	8	7. 14. 15. 56	7. 20. 21. 0	5. 3. 28	5. 5. 6				
Sun.	9	7. 26. 23. 27	8. 2. 23. 35	5. 3. 18	4. 58. 9				
M.	10	8. 8. 21. 43	8. 14. 18. 17	4. 49. 45	4. 38. 15				
Tu.	11	8. 20. 13. 44	8. 26. 8. 36	4. 23. 47	4. 6. 30				
W.	12	9. 2. 3. 25	9. 7. 58. 48	3. 46. 34	3. 24. 10				
Th.	13	9. 13. 55. 21	9. 19. 53. 44	2. 59. 28	2. 32. 40				
F.	14	9. 25. 54. 37	10. 1. 58. 38	2. 4. 0	1. 33. 41				
Sa.	15	10. 8. 6. 28	10. 14. 18. 46	1. 1. 58 N	0. 29. 10 N				
Sun.	16	10. 20. 36. 7	10. 26. 59. 4	0. 4. 24 S	0. 38. 23 S				
M.	17	11. 3. 28. 4	11. 10. 3. 29	1. 12. 22	1. 45. 55				
Tu.	18	11. 16. 45. 35	11. 23. 34. 29	2. 18. 32	2. 49. 41				
W.	19	0. 0. 30. 6	0. 7. 32. 10	3. 18. 49	3. 45. 20				
Th.	20	0. 14. 40. 17	0. 21. 53. 50	4. 8. 42	4. 28. 22				
F.	21	0. 29. 12. 2	1. 6. 33. 57	4. 43. 51	4. 54. 46				
Sa.	22	1. 13. 58. 33	1. 21. 24. 41	5. 0. 47	5. 1. 44				
Sun.	23	1. 28. 51. 16	2. 6. 17. 10	4. 57. 35	4. 48. 24				
M.	24	2. 13. 41. 24	2. 21. 3. 3	4. 34. 24	4. 15. 55				
Tu.	25	2. 28. 21. 23	3. 5. 35. 48	3. 53. 20	3. 27. 10				
W.	26	3. 12. 45. 53	3. 19. 51. 22	2. 57. 57	2. 26. 17				
Th.	27	3. 26. 52. 8	4. 3. 48. 10	1. 52. 43	1. 17. 50				
F.	28	4. 10. 39. 35	4. 17. 26. 32	0. 42. 12 S	0. 6. 21 S				
Sa.	29	4. 24. 9. 16	5. 0. 48. 2	0. 29. 12 N	1. 3. 58 N				
Sun.	30	5. 7. 23. 5	5. 13. 54. 41	1. 37. 32	2. 9. 29				
M.	31	5. 20. 23. 5	5. 26. 48. 30	2. 39. 27	3. 7. 7				

Days of the Month.		THE MOON'S					
		Age.	Pass. Merid.	Right Ascension.		Declination.	
				Noon.	Midnight.	Noon.	Midnight.
				D. M. S.	D. M. S.	D. M. S.	D. M. S.
1	27	21. 22		136. 2. 27	142. 55. 59	16. 5. 29 N	14. 37. 16 N
2	28	22. 12		149. 40. 57	156. 17. 31	12. 57. 45	11. 8. 44
3	29	23. 1		162. 46. 7	169. 7. 23	9. 12. 0	7. 9. 20
4	30	23. 48		175. 22. 8	181. 31. 18	5. 2. 30	2. 53. 11 N
5	1	6		187. 35. 50	193. 36. 44	0. 42. 59 N	1. 26. 36 S
6	2	0. 33		199. 35. 0	205. 31. 35	3. 34. 6 S	5. 38. 11
7	3	1. 19		211. 27. 22	217. 23. 11	7. 37. 36	9. 31. 11
8	4	2. 4		223. 19. 45	229. 17. 44	11. 17. 53	12. 56. 41
9	5	2. 50		235. 17. 38	241. 19. 52	14. 26. 39	15. 46. 58
10	6	3. 36		247. 24. 41	253. 32. 13	16. 56. 54	17. 55. 44
11	7	4. 23		259. 42. 30	265. 55. 26	18. 42. 53	19. 17. 49
12	8	5. 11		272. 10. 47	278. 28. 16	19. 40. 5	19. 49. 21
13	9	5. 59		284. 47. 31	291. 8. 9	19. 45. 22	19. 27. 58
14	10	6. 48		297. 29. 50	303. 52. 12	18. 57. 7	18. 12. 52
15	11	7. 37		310. 15. 2	316. 38. 11	17. 15. 26	16. 5. 6
16	12	8. 26		323. 1. 39	329. 25. 34	14. 42. 20	13. 7. 44
17	13	9. 15		335. 50. 12	342. 16. 0	11. 22. 3	9. 26. 16
18	14	10. 5		348. 43. 33	355. 13. 34	7. 21. 28	5. 8. 59
19	15	10. 56		1. 46. 49	8. 24. 10	2. 50. 23 S	0. 27. 27 S
20	16	11. 48		15. 6. 33	21. 54. 50	1. 57. 48 N	4. 23. 10 N
21	17	12. 42		28. 49. 48	35. 52. 5	6. 46. 16	9. 4. 33
22	18	13. 38		43. 2. 4	50. 19. 46	11. 15. 25	13. 16. 17
23	19	14. 36		57. 44. 51	65. 16. 29	15. 4. 41	16. 38. 21
24	20	15. 36		72. 53. 22	80. 33. 46	17. 55. 19	18. 54. 5
25	21	16. 36		88. 15. 35	95. 56. 32	19. 33. 39	19. 53. 30
26	22	17. 35		103. 34. 16	111. 6. 39	19. 53. 39	19. 34. 38
27	23	18. 31		118. 31. 47	125. 48. 12	18. 57. 26	18. 3. 23
28	24	19. 25		132. 54. 58	139. 51. 34	16. 54. 3	15. 31. 8
29	25	20. 15		146. 38. 0	153. 14. 36	13. 56. 26	12. 11. 44
30	26	21. 3		159. 42. 2	166. 1. 10	10. 18. 51	8. 19. 31
31	27	21. 49		172. 13. 4	178. 18. 51	6. 15. 20	4. 7. 53 N

Days of the Week.	Days of the Month.	THE MOON's				Proportional Logarithm.	
		Semidiameter.		Hor. Parallax.			
		Noon.	Midnight.	Noon.	Midnight.	Noon.	Midn.
		M. S.	M. S.	M. S.	M. S.		
Sa.	1	15. 50	15. 46	58. 5	57. 51	4912	4930
Sun.	2	15. 42	15. 38	57. 37	57. 23	4947	4965
M.	3	15. 34	15. 30	57. 9	56. 54	4983	5002
Tu.	4	15. 26	15. 22	56. 39	56. 24	5021	5040
W.	5	15. 18	15. 14	56. 9	55. 54	5059	5079
Th.	6	15. 10	15. 6	55. 39	55. 25	5098	5116
F.	7	15. 2	14. 59	55. 11	54. 58	5135	5152
Sa.	8	14. 55	14. 52	54. 46	54. 35	5168	5182
Sun.	9	14. 50	14. 48	54. 26	54. 18	5194	5205
M.	10	14. 46	14. 45	54. 12	54. 8	5213	5218
Tu.	11	14. 45	14. 45	54. 6	54. 7	5221	5219
W.	12	14. 46	14. 47	54. 10	54. 16	5215	5207
Th.	13	14. 50	14. 53	54. 25	54. 36	5195	5181
F.	14	14. 56	15. 1	54. 49	55. 5	5164	5143
Sa.	15	15. 6	15. 11	55. 23	55. 44	5119	5092
Sun.	16	15. 17	15. 24	56. 6	56. 30	5063	5032
M.	17	15. 31	15. 38	56. 56	57. 22	4999	4966
Tu.	18	15. 45	15. 52	57. 48	58. 14	4933	4901
W.	19	15. 59	16. 6	58. 40	59. 4	4869	4839
Th.	20	16. 12	16. 17	59. 26	59. 45	4812	4789
F.	21	16. 21	16. 25	60. 1	60. 14	4770	4754
Sa.	22	16. 27	16. 29	60. 23	60. 28	4744	4738
Sun.	23	16. 29	16. 29	60. 30	60. 28	4735	4738
M.	24	16. 27	16. 25	60. 23	60. 14	4744	4754
Tu.	25	16. 22	16. 18	60. 2	59. 48	4769	4786
W.	26	16. 13	16. 9	59. 32	59. 15	4805	4826
Th.	27	16. 4	15. 58	58. 57	58. 37	4848	4873
F.	28	15. 53	15. 48	58. 17	57. 58	4897	4921
Sa.	29	15. 43	15. 37	57. 39	57. 20	4945	4969
Sun.	30	15. 32	15. 28	57. 2	56. 45	4991	5013
M.	31	15. 24	15. 19	56. 29	56. 12	5034	5055

DISTANCES of the Moon's *Centre* from the Sun, and from STARS *EAST* of her.

Stars' Names.	Days	Noon.		III ^h .		VI ^h .		IX ^h .		Midnight.		XV ^h .		XVIII ^h .		XXI ^h .	
		D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.
The Sun.	1	53.	46. 43	52.	12. 6	50.	37. 39	49.	3. 24	47.	29. 20	45.	55. 27	44.	21. 47	42.	48. 19
	2	41.	15. 3	39.	42. 0	38.	9. 9	36.	36. 31	35.	4. 7	-	-	-	-	-	-
α Aquilæ.	8	74.	34. 26	73.	14. 24	71.	54. 42	70.	35. 19	69.	16. 17	67.	57. 37	66.	39. 19	65.	21. 25
	9	64.	3. 56	62.	46. 52	61.	30. 14	60.	14. 4	58.	58. 22	-	-	-	-	-	-
Fomalhaut.	9	-	-	-	-	-	-	-	-	90.	56. 57	89.	32. 58	88.	9. 5	86.	45. 18
	10	85.	21. 38	83.	58. 4	82.	34. 36	81.	11. 14	79.	47. 58	78.	24. 48	77.	1. 44	75.	38. 47
	11	74.	15. 55	72.	53. 9	71.	30. 29	70.	7. 56	68.	45. 29	67.	23. 8	66.	0. 53	64.	38. 46
	12	63.	16. 45	61.	54. 51	60.	33. 5	59.	11. 27	57.	49. 58	56.	28. 38	55.	7. 28	53.	46. 28
	13	52.	25. 39	-	-	-	-	-	-	-	-	-	-	-	-	-	-
α Pegasi.	13	67.	32. 31	66.	10. 47	64.	49. 5	63.	27. 26	62.	5. 49	60.	44. 16	59.	22. 49	58.	1. 28
	14	56.	40. 14	55.	19. 6	53.	58. 8	52.	37. 21	51.	16. 47	49.	56. 24	48.	36. 18	47.	16. 33
	15	45.	57. 9	44.	38. 11	43.	19. 41	42.	1. 42	40.	44. 16	-	-	-	-	-	-
α Arietis.	15	-	-	-	-	-	-	-	-	81.	3. 4	79.	32. 8	78.	0. 54	76.	29. 22
	16	74.	57. 33	73.	25. 26	71.	53. 3	70.	20. 22	68.	47. 25	67.	14. 10	65.	40. 39	64.	6. 52
	17	62.	32. 50	60.	58. 31	59.	23. 59	57.	49. 13	56.	14. 14	54.	39. 1	53.	3. 38	51.	28. 6
	18	49.	52. 28	48.	16. 44	46.	40. 55	45.	5. 4	43.	29. 13	-	-	-	-	-	-

DISTANCES of the Moon's *Centre* from the SUN, and from STARS *WEST* of her.

[illegible]

[illegible]

CONFIGURATIONS of the SATELLITES of JUPITER,
at VII o'Clock in the *Evening*.

1		4 ⁺	3 ⁺	1 ⁺	○	2 ⁺	
2		4 ⁺		2 ⁺	○	3 6 1	
3		4 ⁺		1 6 2	○		3 ⁺
4		4 ⁺			○	1 ⁺ 2 ⁺ 3 ⁺	
5		4 ⁺		1 ⁺	○ 3 6 2		
6			4 ⁺ 2 ⁺ 3 ⁺		○		1.●
7			3 ⁺	4 ⁺	○ 2.1		
8			3 ⁺	1 ⁺	○	4 ⁺ 2 ⁺	
9				2 ⁺	○	3 ⁺ 1 ⁺ 4 ⁺	
10			2 ⁺ 1 ⁺		○	3 ⁺ 4 ⁺	
11					○	1 ⁺ 2 ⁺ 3 ⁺ 4 ⁺	
12				1 ⁺	○	2 ⁺ 3 ⁺ 4 ⁺	
13	1.●		2 ⁺ 3 ⁺		○		4 ⁺
14	2.○		3 ⁺		○ 1 ⁺		4 ⁺
15			3 ⁺	1 ⁺	○	4 ⁺ 2 ⁺	
16				2 6 4	○ 3 ⁺ 1 ⁺		
17			4 ⁺ 2 ⁺ 1 ⁺		○	3 ⁺	
18		4 ⁺			○	1 ⁺ 2 ⁺ 3 ⁺	
19		4 ⁺		1 ⁺	○	2 ⁺ 3 ⁺	
20		4 ⁺		2 ⁺ 3 ⁺	○	1 ⁺	
21		4 ⁺	3 ⁺	2 ⁺	○		1.○
22		4 ⁺ 3 ⁺		1 ⁺	○	2 ⁺	
23	2.●		4 ⁺		○	1 ⁺ 3 ⁺	3.○
24	4.○		2 ⁺ 1 ⁺		○	3 ⁺	
25					○	2 6 1 ⁺ 4 ⁺ 3 ⁺	
26			1 ⁺		○	2 ⁺ 3 ⁺ 4 ⁺	
27			2 ⁺ 3 ⁺		○	1 ⁺ 4 ⁺	
28			3 ⁺ 2 ⁺ 1 ⁺		○		4 ⁺
29	1.●		3 ⁺		○	2 ⁺ 4 ⁺	
30	2.●			3 ⁺	○	1 ⁺ 4 ⁺	
31			2 ⁺ 1 ⁺		○	3 ⁺ 4 ⁺	

Days of the Week.	Days of the Month.	<i>Sundays, and other remarkable Days.</i>	<i>Phases of the MOON.</i>		
				D.	H. M.
			☉ New Moon	4.	1. 38
			☾ First Quarter . . .	12.	6. 45
			☾ Full Moon	19.	6. 57
			☾ Last Quarter	25.	22. 28
			<i>Other Phenomena.</i>		
			D.	H.	M.
Tu.	1	<i>All Saints.</i>	1. 8.	-	☾ 1 γ ㄣ.
W.	2	<i>All Souls.</i>	3. 4.	-	☾ λ ㄣ.
Th.	3	<i>On M. of All Souls, 1 ret.</i>	5. 0.	-	☾ γ ㄣ.
F.	4	<i>[Prs. Sophia b.]</i>	6. 3.	-	☾ φ Oph.
Sa.	5	<i>Powder Plot, 1605.</i>	8. 5.	-	☾ 2 α ㄣ.
Sun.	6	<i>23d Sund. after Trinity.</i>	8. 6.	-	☾ 2 μ ㄣ.
		<i>[Leonard.]</i>	9. 11.	-	☾ d ㄣ.
M.	7	<i>Michaelmas Term beg.</i>	11. 14.	-	☾ H.
Tu.	8	<i>Prs. Augusta Sophia b.</i>	11. 15.	-	☾ S ㄣ.
W.	9		11. 21.	-	☾ ㄣ.
Th.	10		12. -.	-	☾ ecl. by the ☉.
F.	11	<i>St. Martin.</i>	14. 5.	-	☾ λ ㄣ.
Sa.	12	<i>Camb.T.div.m. On Mor.</i>	16. 5.	-	☾ x ㄣ.
		<i>[of St. Mart. 2 ret.]</i>	17. 1.	-	☾ v ㄣ.
Sun.	13	<i>24th Sund. after Trinity.</i>	17. 21.	-	☾ 2 ξ Ceti.
M.	14	<i>[Britius.]</i>	18. 0.	-	☾ λ ㄣ.
Tu.	15	<i>Machutus.</i>	18. 4.	-	☾ μ Ceti.
W.	16		18. 23.	-	☾ f ㄣ.
Th.	17	<i>Hugh, Bp. of Lincoln.</i>	19. 1.	-	☾ δ ㄣ.
F.	18	<i>In 8 days of St. Mart. 3 ret.</i>	19. 18.	-	☾ γ ㄣ.
Sa.	19		19. 19.	-	☾ 1 δ ㄣ.
Sun.	20	<i>25th Sund. after Trinity.</i>	19. 19.	-	☾ 2 δ ㄣ.
M.	21	<i>[Edm. K. and Martyr.]</i>	20. 0.	-	☾ α ㄣ.
Tu.	22	<i>Cecilia.</i>	21. 19.	-	☾ v ㄣ.
W.	23	<i>St. Clement.</i>	22. 6.	-	☾ S ㄣ.
Th.	24		22. 8.	-	☾ ζ ㄣ.
F.	25	<i>In 15d. of St. Martin, 4 ret.</i>	22. 12. 35	-	☉ enters ㄣ.
Sa.	26	<i>[Catherine.]</i>	24. 0.	-	☾ δ ㄣ.
Sun.	27	<i>Advent Sunday.</i>	25. 11.	-	☾ α ㄣ.
M.	28	<i>Mich. Term ends.</i>	26. 8.	-	☾ 2 α ㄣ.
Tu.	29		*26. 18.	-	☾ ㄣ.
W.	30	<i>St. Andrew.</i>	26. 21.	-	☾ σ ㄣ.

Days of the Week.	Days of the Month.	THE SUN'S			Diff.	Equation of Time.	Diff.
		Longitude.	Rt. Ascen. in Time.	Declin. South.		Sub. from app. Time.	
		S. D. M. S.	H. M. S.	D. M. S.	M. S.	M. S.	S.
Tu.	1	7. 8. 19. 35	14. 23. 47. 5	14. 17. 35	19. 15	16. 15. 2	1, 2
W.	2	7. 9. 19. 43	14. 27. 42. 9	14. 36. 50	19. 2	16. 16. 4	0, 4
Th.	3	7. 10. 19. 54	14. 31. 39. 0	14. 55. 52	18. 47	16. 16. 8	0, 4
F.	4	7. 11. 20. 6	14. 35. 36. 0	15. 14. 39	18. 32	16. 16. 4	1, 3
Sa.	5	7. 12. 20. 21	14. 39. 33. 8	15. 33. 11	18. 16	16. 15. 1	2, 0
Sun.	6	7. 13. 20. 37	14. 43. 32. 4	15. 51. 27	18. 1	16. 13. 1	2, 9
M.	7	7. 14. 20. 54	14. 47. 31. 9	16. 9. 28	17. 44	16. 10. 2	3, 7
Tu.	8	7. 15. 21. 13	14. 51. 32. 2	16. 27. 12	17. 27	16. 6. 5	4, 6
W.	9	7. 16. 21. 34	14. 55. 33. 3	16. 44. 39	17. 11	16. 1. 9	5, 4
Th.	10	7. 17. 21. 57	14. 59. 35. 2	17. 1. 50	16. 53	15. 56. 5	6, 2
F.	11	7. 18. 22. 20	15. 3. 38. 0	17. 18. 43	16. 35	15. 50. 3	7, 0
Sa.	12	7. 19. 22. 46	15. 7. 41. 6	17. 35. 18	16. 16	15. 43. 3	7, 9
Sun.	13	7. 20. 23. 12	15. 11. 46. 0	17. 51. 34	15. 58	15. 35. 4	8, 7
M.	14	7. 21. 23. 40	15. 15. 51. 3	18. 7. 32	15. 39	15. 26. 7	9, 5
Tu.	15	7. 22. 24. 9	15. 19. 57. 4	18. 23. 11	15. 19	15. 17. 2	10, 3
W.	16	7. 23. 24. 39	15. 24. 4. 3	18. 38. 30	14. 59	15. 6. 9	11, 2
Th.	17	7. 24. 25. 11	15. 28. 12. 1	18. 53. 29	14. 40	14. 55. 7	12, 0
F.	18	7. 25. 25. 44	15. 32. 20. 7	19. 8. 9	14. 18	14. 43. 7	12, 8
Sa.	19	7. 26. 26. 19	15. 36. 30. 1	19. 22. 27	13. 58	14. 30. 9	13, 6
Sun.	20	7. 27. 26. 55	15. 40. 40. 3	19. 36. 25	13. 36	14. 17. 3	14, 4
M.	21	7. 28. 27. 32	15. 44. 51. 3	19. 50. 1	13. 15	14. 2. 9	15, 3
Tu.	22	7. 29. 28. 12	15. 49. 3. 2	20. 3. 16	12. 52	13. 47. 6	16, 1
W.	23	8. 0. 28. 53	15. 53. 15. 9	20. 16. 8	12. 30	13. 31. 5	16, 9
Th.	24	8. 1. 29. 35	15. 57. 29. 4	20. 28. 38	12. 8	13. 14. 6	17, 7
F.	25	8. 2. 30. 19	16. 1. 43. 7	20. 40. 46	11. 44	12. 56. 9	18, 4
Sa.	26	8. 3. 31. 6	16. 5. 58. 7	20. 52. 30	11. 22	12. 38. 5	19, 3
Sun.	27	8. 4. 31. 53	16. 10. 14. 6	21. 3. 52	10. 57	12. 19. 2	20, 0
M.	28	8. 5. 32. 42	16. 14. 31. 2	21. 14. 49	10. 33	11. 59. 2	20, 7
Tu.	29	8. 6. 33. 33	16. 18. 48. 5	21. 25. 22	10. 9	11. 38. 5	21, 4
W.	30	8. 7. 34. 25	16. 23. 6. 5	21. 35. 31	9. 45	11. 17. 1	22, 2

Days	Time of ☉'s Semidiam. passing Merid.	THE SUN'S			Place of the ☉'s Node.
	M. S.	Semi- diameter.	Hourly Motion.	Logar. Distance.	S. D. M.
1	1. 6, 7	16. 9, 3	2. 30, 3	9.996466	4. 17. 34
7	1. 7, 4	16. 10, 7	2. 30, 7	9.995817	4. 17. 15
13	1. 8, 1	16. 12, 1	2. 31, 1	9.995196	4. 16. 56
19	1. 8, 8	16. 13, 3	2. 31, 5	9.994628	4. 16. 37
25	1. 9, 5	16. 14, 4	2. 31, 9	9.994143	4. 16. 18

ECLIPSES OF THE SATELLITES OF JUPITER. MEAN TIME.

I. Satellite.		II. Satellite.		III. Satellite.	
<i>Emersions.</i>		<i>Emersions.</i>			
Days.	H. M. S.	Days.	H. M. S.	Days.	H. M. S.
1	21. 36. 32	2	23. 32. 58	* 3	5. 51. 56 Im.
3	16. 5. 27	6	12. 51. 1	* 3	9. 24. 3 E.
5	10. 34. 26	10	2. 9. 7	10	9. 53. 39 Im.
7	5. 3. 21	13	15. 27. 14	10	13. 25. 32 E.
8	23. 32. 20	17	4. 45. 23	17	13. 55. 28 Im.
10	18. 1. 15	20	18. 3. 34	17	17. 27. 3 E.
12	12. 30. 14	* 24	7. 21. 49	24	17. 57. 21 Im.
* 14	6. 59. 8	27	20. 40. 1	24	21. 28. 38 E.
16	1. 28. 8				
17	19. 57. 2				
19	14. 26. 0				
* 21	8. 54. 54				
23	3. 23. 52				
24	21. 52. 46				
26	16. 21. 44				
28	10. 50. 36				
* 30	5. 19. 34				
				IV. Satellite.	
				2	2. 45. 15 Im.
				* 2	7. 28. 2 E.
				18	21. 0. 10 Im.
				19	1. 41. 41 E.

THE PLANETS'								
Days	Heliocentric		Geocentric		Declin.	Rt. Asc.	Passage	
	Long.	Lat.	Long.	Lat.		in Time.	Merid.	
	S. D. M.	D. M.	S. D. M.	D. M.	D. M.	H. M.	H. M.	
♿ MERCURY. Sup. ♂ 12 ^d . 22 ^h .								
1	6. 12. 44	3. 53 N	7. 0. 56	1. 10 N	10. 43 S	13. 57	23. 35	
4	6. 23. 2	2. 47	7. 5. 53	0. 51	12. 42	14. 15	23. 42	
7	7. 2. 40	1. 40	7. 10. 47	0. 31	14. 35	14. 34	23. 49	
10	7. 11. 48	0. 33 N	7. 15. 38	0. 10 N	16. 22	14. 53	23. 55	
13	7. 20. 32	0. 31 S	7. 20. 26	0. 10 S	18. 2	15. 12	0. 0	
16	7. 29. 0	1. 33	7. 25. 12	0. 30	19. 33	15. 31	0. 7	
19	8. 7. 19	2. 31	7. 29. 55	0. 49	20. 56	15. 50	0. 14	
22	8. 15. 33	3. 26	8. 4. 37	1. 7	22. 10	16. 10	0. 21	
25	8. 23. 49	4. 16	8. 9. 17	1. 23	23. 14	16. 29	0. 28	
28	9. 2. 12	5. 2	8. 13. 56	1. 39	24. 7	16. 49	0. 35	
30	9. 7. 54	5. 30	8. 17. 2	1. 48	24. 37	17. 3	0. 40	
♀ VENUS.								
1	1. 22. 50	1. 17 S	6. 6. 39	2. 42 S	5. 7 S	12. 20	21. 54	
7	2. 2. 28	0. 45	6. 8. 0	1. 25	4. 29	12. 27	21. 38	
13	2. 12. 8	0. 11 S	6. 10. 31	0. 19 S	4. 27	12. 38	21. 25	
19	2. 21. 49	0. 24 N	6. 13. 59	0. 37 N	4. 57	12. 52	21. 15	
25	3. 1. 31	0. 57	6. 18. 13	1. 23	5. 52	13. 9	21. 7	
♂ MARS.								
1	6. 18. 0	0. 56 N	6. 25. 42	0. 35 N	9. 24 S	13. 36	23. 11	
7	6. 20. 47	0. 51	6. 29. 43	0. 32	10. 53	13. 51	23. 2	
13	6. 23. 36	0. 46	7. 3. 45	0. 29	12. 19	14. 7	22. 54	
19	6. 26. 26	0. 41	7. 7. 49	0. 26	13. 43	14. 22	22. 44	
25	6. 29. 17	0. 36	7. 11. 53	0. 23	15. 3	14. 38	22. 35	
♃ JUPITER. ☐ 6 ^d . 12 ^h .								
1	10. 24. 44	0. 57 S	10. 13. 23	0. 59 S	17. 46 S	21. 5	6. 40	
7	10. 25. 16	0. 57	10. 13. 54	0. 58	17. 36	21. 7	6. 18	
13	10. 25. 48	0. 58	10. 14. 30	0. 58	17. 25	21. 9	5. 56	
19	10. 26. 20	0. 58	10. 15. 12	0. 57	17. 12	21. 12	5. 35	
25	10. 26. 53	0. 59	10. 16. 0	0. 57	16. 57	21. 15	5. 13	
♄ SATURN.								
1	5. 7. 29	1. 46 N	5. 12. 32	1. 41 N	8. 25 N	10. 58	20. 31	
7	5. 7. 42	1. 47	5. 13. 3	1. 42	8. 14	11. 0	20. 9	
13	5. 7. 54	1. 47	5. 13. 30	1. 43	8. 5	11. 2	19. 47	
19	5. 8. 7	1. 48	5. 13. 55	1. 45	7. 57	11. 4	19. 24	
25	5. 8. 19	1. 48	5. 14. 16	1. 46	7. 50	11. 5	19. 0	
♅ GEORGIAN. ☐ 3 ^d . 7 ^h .								
1	10. 13. 28	0. 40 S	10. 10. 37	0. 40 S	18. 14 S	20. 53	6. 28	
11	10. 13. 34	0. 40	10. 10. 45	0. 40	18. 12	20. 54	5. 49	
21	10. 13. 41	0. 40	10. 10. 58	0. 40	18. 8	20. 55	5. 9	

Days of the Week.	Days of the Month.	THE MOON'S			
		Longitude.		Latitude.	
		Noon.	Midnight.	Noon.	Midnight.
		S. D. M. S.	S. D. M. S.	D. M. S.	D. M. S.
Tu.	1	6. 3. 11. 6	6. 9. 31. 4	3. 32. 10 N	3. 54. 24 N
W.	2	6. 15. 48. 29	6. 22. 3. 27	4. 13. 35	4. 29. 34
Th.	3	6. 28. 16. 3	7. 4. 26. 21	4. 42. 12	4. 51. 25
F.	4	7. 10. 34. 21	7. 16. 40. 8	4. 57. 11	4. 59. 30
Sa.	5	7. 22. 43. 48	7. 28. 45. 26	4. 58. 24	4. 53. 56
Sun.	6	8. 4. 45. 10	8. 10. 43. 11	4. 46. 13	4. 35. 23
M.	7	8. 16. 39. 44	8. 22. 35. 4	4. 21. 34	4. 4. 57
Tu.	8	8. 28. 29. 33	9. 4. 23. 34	3. 45. 43	3. 24. 2
W.	9	9. 10. 17. 33	9. 16. 12. 0	3. 0. 9	2. 34. 16
Th.	10	9. 22. 7. 28	9. 28. 4. 34	2. 6. 36	1. 37. 24
F.	11	10. 4. 3. 53	10. 10. 6. 7	1. 6. 55	0. 35. 26 N
Sa.	12	10. 16. 11. 56	10. 22. 22. 0	0. 3. 13 N	0. 29. 25 S
Sun.	13	10. 28. 37. 1	11. 4. 57. 37	1. 2. 8 S	1. 34. 34
M.	14	11. 11. 24. 25	11. 17. 57. 57	2. 6. 16	2. 36. 53
Tu.	15	11. 24. 38. 38	0. 1. 26. 49	3. 5. 52	3. 32. 45
W.	16	0. 8. 22. 38	0. 15. 26. 2	3. 56. 59	4. 18. 3
Th.	17	0. 22. 36. 44	0. 29. 54. 19	4. 35. 24	4. 48. 33
F.	18	1. 7. 18. 2	1. 14. 46. 56	4. 57. 5	5. 0. 39
Sa.	19	1. 22. 19. 54	1. 29. 55. 39	4. 59. 0	4. 52. 5
Sun.	20	2. 7. 32. 47	2. 15. 9. 55	4. 39. 57	4. 22. 48
M.	21	2. 22. 45. 39	3. 0. 18. 44	4. 1. 2	3. 35. 8
Tu.	22	3. 7. 48. 3	3. 15. 12. 40	3. 5. 41	2. 33. 21
W.	23	3. 22. 31. 53	3. 29. 45. 11	1. 58. 49	1. 22. 46
Th.	24	4. 6. 52. 17	4. 13. 53. 3	0. 45. 54 S	0. 8. 50 S
F.	25	4. 20. 47. 34	4. 27. 35. 58	0. 27. 49 N	1. 3. 33 N
Sa.	26	5. 4. 18. 35	5. 10. 55. 45	1. 37. 53	2. 10. 26
Sun.	27	5. 17. 27. 51	5. 23. 55. 19	2. 40. 50	3. 8. 47
M.	28	6. 0. 18. 33	6. 6. 38. 0	3. 34. 1	3. 56. 22
Tu.	29	6. 12. 54. 4	6. 19. 7. 7	4. 15. 37	4. 31. 40
W.	30	6. 25. 17. 28	7. 1. 25. 25	4. 44. 24	4. 53. 45

Days of the Month.	THE MOON'S					
	Age.	Pass. Merid.	Right Ascension.		Declination.	
			Noon.	Midnight.	Noon.	Midnight.
			D. M. S.	D. M. S.	D. M. S.	D. M. S.
1	28	22. 34	184. 19. 42	190. 16. 48	1. 58. 38 N	0. 10. 55 S
2	29	23. 19	196. 11. 16	202. 4. 13	2. 19. 26 S	4. 25. 36
3	1	♂	207. 56. 38	213. 49. 27	6. 28. 12	8. 26. 1
4	2	0. 3	219. 43. 25	225. 39. 12	10. 17. 51	12. 2. 39
5	3	0. 48	231. 37. 20	237. 38. 10	13. 39. 21	15. 7. 1
6	4	1. 34	243. 41. 53	249. 48. 31	16. 24. 43	17. 31. 40
7	5	2. 21	255. 57. 58	262. 9. 58	18. 27. 8	19. 10. 32
8	6	3. 8	268. 24. 8	274. 40. 0	19. 41. 22	19. 59. 16
9	7	3. 56	280. 57. 2	287. 14. 41	20. 3. 59	19. 55. 24
10	8	4. 44	293. 32. 28	299. 50. 0	19. 33. 30	18. 58. 24
11	9	5. 31	306. 6. 57	312. 23. 10	18. 10. 20	17. 9. 36
12	10	6. 19	318. 38. 39	324. 53. 34	15. 56. 37	14. 31. 56
13	11	7. 6	331. 8. 20	337. 23. 27	12. 56. 9	11. 10. 0
14	12	7. 54	343. 39. 39	349. 57. 51	9. 14. 18	7. 10. 2
15	13	8. 42	356. 19. 2	2. 44. 22	4. 58. 22	2. 4. 36 S
16	14	9. 32	9. 15. 3	15. 52. 18	0. 18. 18 S	2. 6. 43 N
17	15	10. 24	22. 37. 19	29. 31. 14	4. 32. 26 N	6. 56. 34
18	16	11. 19	36. 34. 58	43. 49. 5	9. 16. 29	11. 29. 33
19	17	12. 17	51. 13. 46	58. 48. 40	13. 32. 50	15. 23. 32
20	18	13. 18	66. 32. 43	74. 24. 15	16. 58. 58	18. 16. 46
21	19	14. 20	82. 20. 55	90. 19. 53	19. 15. 1	19. 52. 26
22	20	15. 22	98. 18. 1	106. 12. 8	20. 8. 25	20. 3. 6
23	21	16. 21	113. 59. 22	121. 37. 16	19. 37. 16	18. 52. 16
24	22	17. 17	129. 4. 3	136. 18. 39	17. 49. 50	16. 32. 0
25	23	18. 9	143. 20. 36	150. 10. 3	15. 0. 53	13. 18. 40
26	24	18. 58	156. 47. 40	163. 14. 26	11. 27. 24	9. 29. 4
27	25	19. 44	169. 31. 32	175. 40. 21	7. 25. 27	5. 18. 14
28	26	20. 29	181. 42. 19	187. 38. 53	3. 8. 56 N	0. 58. 57 N
29	27	21. 13	193. 31. 30	199. 21. 33	1. 10. 26 S	3. 18. 0 S
30	28	21. 56	205. 10. 18	210. 58. 54	5. 22. 34	7. 23. 0

Days of the Week.	Days of the Month.	THE MOON'S				Proportional Logarithm.	
		Semidiameter.		Hor. Parallax.			
		Noon.	Midnight.	Noon.	Midnight.		
		M. S.	M. S.	M. S.	M. S.	Noon.	Midn.
Tu.	1	15. 15	15. 11	55. 57	55. 43	5075	5093
W.	2	15. 7	15. 4	55. 29	55. 16	5111	5128
Th.	3	15. 0	14. 57	55. 4	54. 53	5144	5158
F.	4	14. 54	14. 52	54. 42	54. 32	5173	5186
Sa.	5	14. 49	14. 47	54. 23	54. 16	5198	5207
Sun.	6	14. 45	14. 44	54. 9	54. 4	5217	5223
M.	7	14. 43	14. 43	54. 1	53. 59	5227	5230
Tu.	8	14. 42	14. 43	53. 58	53. 59	5231	5230
W.	9	14. 44	14. 46	54. 3	54. 10	5225	5215
Th.	10	14. 48	14. 51	54. 18	54. 28	5205	5191
F.	11	14. 54	14. 58	54. 41	54. 57	5174	5153
Sa.	12	15. 3	15. 9	55. 15	55. 35	5129	5103
Sun.	13	15. 15	15. 22	55. 58	56. 23	5073	5041
M.	14	15. 29	15. 37	56. 49	57. 17	5008	4972
Tu.	15	15. 44	15. 52	57. 46	58. 15	4936	4900
W.	16	16. 0	16. 8	58. 44	59. 12	4864	4830
Th.	17	16. 15	16. 22	59. 39	60. 4	4797	4766
F.	18	16. 28	16. 32	60. 25	60. 42	4741	4721
Sa.	19	16. 36	16. 39	60. 55	61. 5	4705	4693
Sun.	20	16. 40	16. 40	61. 11	61. 11	4686	4686
M.	21	16. 39	16. 37	61. 7	60. 58	4691	4702
Tu.	22	16. 33	16. 28	60. 45	60. 27	4717	4739
W.	23	16. 23	16. 17	60. 7	59. 45	4763	4789
Th.	24	16. 10	16. 3	59. 20	58. 55	4820	4850
F.	25	15. 56	15. 49	58. 30	58. 4	4881	4913
Sa.	26	15. 42	15. 36	57. 39	57. 14	4945	4976
Sun.	27	15. 29	15. 23	56. 51	56. 28	5005	5035
M.	28	15. 18	15. 13	56. 8	55. 49	5061	5085
Tu.	29	15. 8	15. 4	55. 32	55. 16	5107	5128
W.	30	15. 0	14. 56	55. 2	54. 49	5146	5164

DISTANCES of the Moon's Centre from the SUN, and from STARS EAST of her.

Stars' Names.	Days	Noon.		III ^h .		VI ^h .		IX ^h .		Midnight.		XV ^h .		XVIII ^h .		XXI ^h .	
		D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.
Fomalhaut.	7	77.	31. 16	76.	8. 3	74.	44. 57	73.	21. 59	71.	59. 7	70.	36. 23	69.	13. 47	67.	51. 19
	8	66.	29. 0	65.	6. 49	63.	44. 47	62.	22. 55	61.	1. 13	59.	39. 40	58.	18. 19	56.	57. 11
	9	55.	36. 14	54.	15. 29	52.	55. 0	51.	34. 47	50.	14. 49	48.	55. 9	47.	35. 50	46.	16. 51
	10	44.	58. 13	-	-	-	-	-	-	-	-	-	-	-	-	-	-
α Pegasi.	10	60.	10. 17	58.	50. 1	57.	29. 53	56.	9. 56	54.	50. 10	53.	30. 38	52.	11. 20	50.	52. 20
	11	49.	33. 39	48.	15. 15	46.	57. 14	45.	39. 41	44.	22. 36	43.	6. 3	41.	50. 7	40.	34. 50
	12	39.	20. 13	-	-	-	-	-	-	-	-	-	-	-	-	-	-
α Arietis.	12	79.	16. 14	77.	47. 2	76.	17. 35	74.	47. 55	73.	18. 0	71.	47. 51	70.	17. 27	68.	46. 49
	13	67.	15. 56	65.	44. 48	64.	13. 26	62.	41. 49	61.	9. 59	59.	37. 53	58.	5. 35	56.	33. 4
	14	55.	0. 21	53.	27. 24	51.	54. 18	50.	21. 3	48.	47. 40	47.	14. 8	45.	40. 33	44.	6. 56
	15	42.	33. 21	40.	59. 49	39.	26. 25	37.	53. 9	36.	20. 5	-	-	-	-	-	-
Aldebaran.	15	-	-	-	-	-	-	-	-	65.	47. 18	64.	4. 5	62.	20. 25	60.	36. 18
	16	58.	51. 43	57.	6. 41	55.	21. 13	53.	35. 19	51.	48. 57	50.	2. 10	48.	14. 57	46.	27. 19
	17	44.	39. 16	42.	50. 47	41.	1. 56	39.	12. 41	37.	23. 3	35.	33. 3	33.	42. 43	31.	52. 2
	18	30.	1. 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pollux.	18	74.	22. 5	72.	32. 9	70.	41. 57	68.	51. 30	67.	0. 48	65.	9. 54	63.	18. 49	61.	27. 36
	19	59.	36. 13	57.	44. 44	55.	53. 10	54.	1. 33	52.	9. 55	50.	18. 16	48.	26. 41	46.	35. 11
	20	44.	43. 49	42.	52. 36	41.	1. 36	39.	10. 50	37.	20. 21	-	-	-	-	-	-

Stars' Names.	Days	Noon.		III ^h .		VI ^h .		IX ^h .		Midnight.		XV ^h .		XVIII ^h .		XXI ^h .	
		D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.
Regulus.	20	-	-	-	-	-	-	-	-	72. 24. 50	-	70. 30. 56	-	68. 37. 8	-	66. 43. 26	-
	21	64. 49. 50	-	62. 56. 22	-	61. 3. 5	-	59. 9. 58	-	57. 17. 2	-	55. 24. 18	-	53. 31. 49	-	51. 39. 34	-
	22	49. 47. 33	-	47. 55. 49	-	46. 4. 22	-	44. 13. 13	-	42. 22. 21	-	40. 31. 48	-	38. 41. 35	-	36. 51. 42	-
	23	35. 2. 10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Spica η .	23	88. 53. 11	-	87. 4. 43	-	85. 16. 37	-	83. 28. 53	-	81. 41. 31	-	79. 54. 32	-	78. 7. 56	-	76. 21. 44	-
	24	74. 35. 55	-	72. 50. 31	-	71. 5. 31	-	69. 20. 56	-	67. 36. 45	-	65. 52. 57	-	64. 9. 34	-	62. 26. 37	-
	25	60. 44. 4	-	59. 1. 57	-	57. 20. 14	-	55. 38. 57	-	53. 58. 4	-	52. 17. 36	-	50. 37. 33	-	48. 57. 55	-
	26	47. 18. 41	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
The Sun.	23	-	-	-	-	-	-	-	-	121. 13. 27	-	119. 33. 49	-	117. 54. 34	-	116. 15. 41	-
	24	114. 37. 10	-	112. 59. 2	-	111. 21. 16	-	109. 43. 54	-	108. 6. 54	-	106. 30. 17	-	104. 54. 3	-	103. 18. 12	-
	25	101. 42. 44	-	100. 7. 39	-	98. 32. 57	-	96. 58. 38	-	95. 24. 41	-	93. 51. 6	-	92. 17. 53	-	90. 45. 2	-
	26	89. 12. 32	-	87. 40. 23	-	86. 8. 36	-	84. 37. 8	-	83. 6. 2	-	81. 35. 16	-	80. 4. 49	-	78. 34. 42	-
	27	77. 4. 54	-	75. 35. 24	-	74. 6. 13	-	72. 37. 20	-	71. 8. 44	-	69. 40. 26	-	68. 12. 25	-	66. 44. 41	-
	28	65. 17. 13	-	63. 50. 1	-	62. 23. 4	-	60. 56. 22	-	59. 29. 55	-	58. 3. 43	-	56. 37. 44	-	55. 11. 59	-
	29	53. 46. 28	-	52. 21. 10	-	50. 56. 5	-	49. 31. 12	-	48. 6. 32	-	46. 42. 4	-	45. 17. 48	-	43. 53. 43	-
	30	42. 29. 51	-	41. 6. 10	-	39. 42. 40	-	-	-	-	-	-	-	-	-	-	-

DISTANCES of the MOON'S Centre from the SUN, and from STARS WEST of her.

Stars' Names.	Days	Noon.		III ^h .		VI ^h .		IX ^h .		Midnight.		XV ^h .		XVIII ^h .		XXI ^h .	
		D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.
The Sun.	7	-	-	-	-	-	-	-	-	-	-	39. 15. 30	40. 35. 43	41. 55. 58			
	8	43. 16. 14	44. 36. 31	45. 56. 49	47. 17. 10	48. 37. 32	49. 57. 56	51. 18. 22	52. 38. 52	53. 59. 25	55. 20. 1	56. 40. 42	58. 1. 28	59. 22. 18	60. 43. 13	62. 4. 14	63. 25. 22
	9	53. 59. 25	55. 20. 1	56. 40. 42	58. 1. 28	59. 22. 18	60. 43. 13	62. 4. 14	63. 25. 22	64. 46. 37	66. 7. 59	67. 29. 30	68. 51. 9	70. 12. 56	71. 34. 52	72. 56. 58	74. 19. 15
	10	64. 46. 37	66. 7. 59	67. 29. 30	68. 51. 9	70. 12. 56	71. 34. 52	72. 56. 58	74. 19. 15	75. 41. 43	77. 4. 22	78. 27. 14	79. 50. 18	81. 13. 36	82. 37. 7	84. 0. 53	85. 24. 54
	11	75. 41. 43	77. 4. 22	78. 27. 14	79. 50. 18	81. 13. 36	82. 37. 7	84. 0. 53	85. 24. 54	86. 49. 10	88. 13. 42	89. 38. 31	91. 3. 37	92. 29. 1	93. 54. 43	95. 20. 44	96. 47. 4
	12	86. 49. 10	88. 13. 42	89. 38. 31	91. 3. 37	92. 29. 1	93. 54. 43	95. 20. 44	96. 47. 4	98. 13. 44	99. 40. 44	101. 8. 5	102. 35. 47	104. 3. 51	105. 32. 17	107. 1. 6	108. 30. 19
	13	98. 13. 44	99. 40. 44	101. 8. 5	102. 35. 47	104. 3. 51	105. 32. 17	107. 1. 6	108. 30. 19	109. 59. 54	111. 29. 53	113. 0. 17	114. 31. 5	116. 2. 18	117. 33. 55	119. 5. 58	120. 38. 26
Antares.	14	109. 59. 54	111. 29. 53	113. 0. 17	114. 31. 5	116. 2. 18	117. 33. 55	119. 5. 58	120. 38. 26	70. 23. 11	71. 54. 34	73. 26. 15	74. 58. 15	76. 30. 34	78. 3. 13	79. 36. 12	81. 1. 29
	15	68. 52. 7	70. 23. 11	71. 54. 34	73. 26. 15	74. 58. 15	76. 30. 34	78. 3. 13	79. 36. 12	81. 1. 29	82. 43. 11	84. 17. 13	85. 51. 36	87. 26. 21	89. 1. 29	90. 37. 0	92. 12. 54
	16	81. 9. 31	82. 43. 11	84. 17. 13	85. 51. 36	87. 26. 21	89. 1. 29	90. 37. 0	92. 12. 54	93. 49. 11	95. 25. 52	97. 2. 58	98. 40. 27	100. 18. 21	101. 56. 39	103. 35. 22	105. 14. 29
α Aquilæ.	17	106. 54. 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	18	61. 58. 23	63. 24. 49	64. 52. 2	66. 20. 1	67. 48. 44	69. 18. 9	70. 48. 16	72. 19. 2	73. 50. 26	75. 22. 27	76. 55. 2	78. 28. 11	80. 1. 53	81. 1. 53	82. 4. 14	83. 25. 22
Fomalhaut.	19	73. 50. 26	75. 22. 27	76. 55. 2	78. 28. 11	80. 1. 53	81. 1. 53	82. 4. 14	83. 25. 22	84. 17. 13	85. 51. 36	87. 26. 21	89. 1. 29	90. 37. 0	92. 12. 54	93. 49. 11	95. 25. 52
	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fomalhaut.	22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	23	52. 13. 57	53. 52. 16	55. 31. 23	57. 11. 16	58. 51. 53	60. 33. 9	62. 15. 3	63. 57. 32	65. 40. 35	67. 24. 9	69. 8. 11	70. 52. 40	72. 37. 33	74. 19. 15	75. 41. 43	76. 49. 10
	24	65. 40. 35	67. 24. 9	69. 8. 11	70. 52. 40	72. 37. 33	74. 19. 15	75. 41. 43	76. 49. 10	77. 4. 22	78. 27. 14	79. 50. 18	81. 13. 36	82. 37. 7	84. 0. 53	85. 24. 54	86. 49. 10

[illegible]

CONFIGURATIONS of the SATELLITES of JUPITER,
at VII o'Clock in the *Evening*.

1					○ 4 6 2 .1	.3
2	4.●		.1	○	2. 3.	
3	3.●	4.	2.	○	1.	
4		4.	3.	○	.2 .1	
5	4.	.3		○	.2	1.●
6	.4		.3	○ 2 6 1		
7	.4	.2	1.	○	.3	
8		.4		○	.2 .1	.3
9		.4	1.	○	2. 3.	
10	3.●		2.	○ .4	1.	
11		3.	.2 .1	○	.4	
12		.3		○	1. .2	.4
13	.1○	.3		○	2.	.4
14		2.	1.	○	.3	4.
15	.2○			○	.1	.3
16				○	.1	.3
17			1.	○	2. 3. 4.	
18			2.	○	3. 1. 4.	
19		3. .2 .1		○ 4.		
20		.3	4.	○	1. .2	
21		4.	.3	○	.1	2.
22	4.		2.	○	.3	1.●
23	.4		.2	○	.1	.3
24			1.	○	2. 3.	
25		.4		○	3. .1	2.●
26		.4 3 6 2 .1		○		
27		3.	.4	○	1. .2	
28		.3	.1	○	.4 2.	
29		2.		○	.3	1.●
30		.2		○	.1	.3
		1.		○	.2	3.

Days of the Week.	Days of the Month.		<i>Phases of the MOON.</i>
		<i>Sundays, and other remarkable Days.</i>	D. H. M. ● New Moon 3. 19. 48 ☾ First Quarter . . . 11. 23. 22 ○ Full Moon 18. 17. 10 ☾ Last Quarter . . . 25. 12. 10
Th.	1		<i>Other Phenomena.</i>
F.	2		D. H. M.
Sa.	3		1. 6. - ☿ ♀ Oph.
			1. 22. - ☿ B Oph.
			2. 6. - ☾ γ ☄.
Sun.	4	2d Sunday in Advent.	5. 11. - ☾ 1 μ ♀.
M.	5		5. 12. - ☾ 2 μ ♀.
Tu.	6	Nicolas.	5. 20. - ☿ ♀ ♃.
W.	7		6. 14. - ☾ π ♀.
Th.	8	Conception of B.V.Mary.	6. 18. - ☾ d ♀.
F.	9		8. 22. - ☾ ♀ ♃.
Sa.	10		8. 22. - ☾ ☿.
			9. 11. - ☾ ♃.
Sun.	11	3d Sunday in Advent.	11. 0. - ☿ λ ♀.
M.	12		11. 2. - ♀ κ ♃.
Tu.	13	Lucy.	14. 11. - ☾ ν ♃.
W.	14		14. 12. - ☿ κ ☄.
Th.	15		15. 4. - ☿ σ ♀.
F.	16	Camb. Term ends. O Sap.	15. 8. - ☾ 2 ξ Ceti.
Sa.	17	Oxf. Term ends.	15. 15. - ☾ μ Ceti.
			16. 10. - ☾ f ♃.
Sun.	18	4th Sunday in Advent.	17. 5. - ☾ γ ♃.
M.	19		17. 6. - ☾ 1 δ ♃.
Tu.	20		17. 7. - ☾ 2 δ ♃.
W.	21	St. Thomas.	17. 11. - ☾ α ♃.
Th.	22		18. 12. - ☿ λ ☄.
F.	23		18. 13. - ☿ ↓ ♀.
Sa.	24		19. 5. - ☾ ν ♃.
			19. 18. - ☾ ζ ♃.
Sun.	25	Christmas Day.	21. 9. - ☾ δ ☄.
M.	26	St. Stephen.	22. 1. 6 ☉ enters ♃.
Tu.	27	St. John.	22. 18. - ☿ 1 and 2 β ♃.
W.	28	Innocents.	22. 19. - ☾ α ♃.
Th.	29		24. - ♃ Station. near σ ♃.
F.	30		24. 2. - ☾ ♃.
Sa.	31	Silvester.	24. 4. - ☾ σ ♃.
			29. 12. - ☾ γ ☄.
			30. 15. - ☾ φ Oph.
			30. 17. - ♀ 4 ζ ☄.

Days of the Week.	Days of the Month.	THE SUN'S			Diff.	Equation of Time. <i>Sub. from app. Time.</i>	Diff.
		Longitude.	Rt. Ascen. <i>in Time.</i>	Declin. <i>South.</i>			
		S. D. M. S.	H. M. S.	D. M. S.	M. S.	M. S.	S.
Th.	1	8. 8. 35. 19	16. 27. 25. 3	21. 45. 16	9. 19	10. 54. 9	22. 8
F.	2	8. 9. 36. 14	16. 31. 44. 7	21. 54. 35	8. 54	10. 32. 1	23. 4
Sa.	3	8. 10. 37. 10	16. 36. 4. 7	22. 3. 29	8. 28	10. 8. 7	24. 0
Sun.	4	8. 11. 38. 8	16. 40. 25. 4	22. 11. 57	8. 3	9. 44. 7	24. 6
M.	5	8. 12. 39. 6	16. 44. 46. 6	22. 20. 0	7. 36	9. 20. 1	25. 2
Tu.	6	8. 13. 40. 5	16. 49. 8. 4	22. 27. 36	7. 10	8. 54. 9	25. 7
W.	7	8. 14. 41. 5	16. 53. 30. 7	22. 34. 46	6. 44	8. 29. 2	26. 2
Th.	8	8. 15. 42. 6	16. 57. 53. 6	22. 41. 30	6. 17	8. 3. 0	26. 7
F.	9	8. 16. 43. 8	17. 2. 16. 9	22. 47. 47	5. 50	7. 36. 3	27. 1
Sa.	10	8. 17. 44. 10	17. 6. 40. 6	22. 53. 37	5. 22	7. 9. 2	27. 4
Sun.	11	8. 18. 45. 13	17. 11. 4. 7	22. 58. 59	4. 55	6. 41. 8	27. 9
M.	12	8. 19. 46. 16	17. 15. 29. 2	23. 3. 54	4. 28	6. 13. 9	28. 3
Tu.	13	8. 20. 47. 20	17. 19. 54. 0	23. 8. 22	4. 0	5. 45. 6	28. 5
W.	14	8. 21. 48. 24	17. 24. 19. 2	23. 12. 22	3. 32	5. 17. 1	28. 7
Th.	15	8. 22. 49. 29	17. 28. 44. 7	23. 15. 54	3. 5	4. 48. 4	29. 0
F.	16	8. 23. 50. 34	17. 33. 10. 3	23. 18. 59	2. 36	4. 19. 4	29. 3
Sa.	17	8. 24. 51. 39	17. 37. 36. 0	23. 21. 35	2. 8	3. 50. 1	29. 4
Sun.	18	8. 25. 52. 45	17. 42. 2. 2	23. 23. 43	1. 40	3. 20. 7	29. 6
M.	19	8. 26. 53. 51	17. 46. 28. 4	23. 25. 23	1. 12	2. 51. 1	29. 7
Tu.	20	8. 27. 54. 58	17. 50. 54. 8	23. 26. 35	0. 44	2. 21. 4	29. 9
W.	21	8. 28. 56. 5	17. 55. 21. 3	23. 27. 19	0. 16	1. 51. 5	29. 9
Th.	22	8. 29. 57. 13	17. 59. 47. 8	23. 27. 35	0. 13	1. 21. 6	29. 9
F.	23	9. 0. 58. 21	18. 4. 14. 4	23. 27. 22	0. 41	0. 51. 7	29. 9
Sa.	24	9. 1. 59. 30	18. 8. 41. 0	23. 26. 41	1. 10	0. 21. 8	30. 0
Sun.	25	9. 3. 0. 40	18. 13. 7. 6	23. 25. 31	1. 38	<i>Add.</i> 0. 8. 2	29. 9
M.	26	9. 4. 1. 50	18. 17. 34. 2	23. 23. 53	2. 6	0. 38. 1	29. 8
Tu.	27	9. 5. 3. 1	18. 22. 0. 7	23. 21. 47	2. 34	1. 7. 9	29. 7
W.	28	9. 6. 4. 13	18. 26. 27. 0	23. 19. 13	3. 3	1. 37. 6	29. 6
Th.	29	9. 7. 5. 25	18. 30. 53. 2	23. 16. 10	3. 30	2. 7. 2	29. 4
F.	30	9. 8. 6. 37	18. 35. 19. 2	23. 12. 40	3. 58	2. 36. 6	29. 1
Sa.	31	9. 9. 7. 50	18. 39. 45. 0	23. 8. 42	4. 26	3. 5. 7	28. 9

Days	Time of ☉'s	THE SUN'S			Place
	Semidiam. passing Merid.	Semi- diameter.	Hourly Motion.	Logar. Distance.	of the ☉'s Node.
	M. S.	M. S.	M. S.		S. D. M.
1	1. 10, 0	16. 15, 4	2. 32, 2	9. 993727	4. 15. 59
7	1. 10, 5	16. 16, 2	2. 32, 4	9. 993361	4. 15. 40
13	1. 10, 8	16. 16, 9	2. 32, 6	9. 993051	4. 15. 21
19	1. 10, 9	16. 17, 4	2. 32, 8	9. 992823	4. 15. 2
25	1. 11, 0	16. 17, 7	2. 32, 9	9. 992700	4. 14. 43

ECLIPSES OF THE SATELLITES OF JUPITER.
MEAN TIME.

I. Satellite.		II. Satellite.		III. Satellite.	
<i>Emersions.</i>		<i>Emersions.</i>			
Days.	H. M. S.	Days.	H. M. S.	Days.	H. M. S.
1	23. 48. 26	1	9. 58. 20	1	21. 59. 52 Im.
3	18. 17. 22	4	23. 16. 35	2	1. 30. 50 E.
5	12. 46. 15	8	12. 35. 0	9	2. 1. 52 Im.
* 7	7. 15. 11	12	1. 53. 15	* 9	5. 32. 29 E.
9	1. 44. 2	15	15. 11. 45	* 16	6. 4. 11 Im.
10	20. 12. 58	19	4. 30. 3	16	9. 34. 27 E.
12	14. 41. 49	22	17. 48. 38	23	10. 5. 50 Im.
14	9. 10. 45	26	7. 6. 59	23	13. 35. 43 E.
16	3. 39. 35	29	20. 25. 38	30	14. 7. 22 Im.
17	22. 8. 29			30	17. 36. 52 E.
19	16. 37. 18				
21	11. 6. 13				
* 23	5. 35. 2				
25	0. 3. 56				
26	18. 32. 44				
28	13. 1. 36				
30	7. 30. 24				
				IV. Satellite.	
				5	15. 14. 35 Im.
				5	19. 54. 32 E.
				22	9. 29. 23 Im.
				22	14. 7. 16 E.

THE PLANETS'								
Days	Heliocentric		Geocentric		Rt. Asc.		Passage	
	Long.	Lat.	Long.	Lat.	Declin.	in Time.	Merid.	
	S. D. M.	D. M.	S. D. M.	D. M.	D. M.	H. M.	H. M.	
♿ MERCURY. Gr. Elong. 25 ^d .								
1	9. 10. 48	5. 42 S	8. 18. 35	1. 52 S	24. 50 S	17. 10	0. 42	
4	9. 19. 43	6. 16	8. 23. 13	2. 3	25. 20	17. 30	0. 50	
7	9. 29. 3	6. 41	8. 27. 49	2. 11	25. 38	17. 50	0. 57	
10	10. 8. 56	6. 56	9. 2. 24	2. 16	25. 42	18. 11	1. 4	
13	10. 19. 31	7. 0	9. 6. 54	2. 17	25. 34	18. 31	1. 11	
16	11. 0. 57	6. 47	9. 11. 18	2. 13	25. 12	18. 50	1. 17	
19	11. 13. 24	6. 14	9. 15. 30	2. 3	24. 36	19. 8	1. 22	
22	11. 27. 1	5. 19	9. 19. 24	1. 47	23. 49	19. 25	1. 24	
25	0. 11. 57	3. 58	9. 22. 46	1. 22	22. 53	19. 39	1. 26	
28	0. 28. 14	2. 11	9. 25. 20	0. 47	21. 52	19. 50	1. 23	
31	1. 15. 47	0. 4	9. 26. 43	0. 1	20. 52	19. 56	1. 16	
♀ VENUS. Gr. Elong. 18 ^d .								
1	3. 11. 13	1. 30 N	6. 23. 4	1. 59 N	7. 9 S	13. 28	21. 0	
7	3. 20. 57	1. 59	6. 28. 23	2. 26	8. 38	13. 49	20. 55	
13	4. 0. 42	2. 25	7. 4. 4	2. 45	10. 18	14. 11	20. 51	
19	4. 10. 27	2. 47	7. 10. 4	2. 57	12. 3	14. 34	20. 48	
25	4. 20. 13	3. 5	7. 16. 18	3. 3	13. 48	14. 59	20. 46	
♂ MARS.								
1	7. 2. 10	0. 31 N	7. 15. 59	0. 20 N	16. 19 S	14. 54	22. 25	
7	7. 5. 4	0. 25	7. 20. 6	0. 17	17. 31	15. 11	22. 16	
13	7. 8. 0	0. 20	7. 24. 14	0. 13	18. 38	15. 28	22. 6	
19	7. 10. 57	0. 14	7. 28. 24	0. 9	19. 40	15. 45	21. 57	
25	7. 13. 56	0. 8	8. 2. 34	0. 6	20. 36	16. 2	21. 48	
♃ JUPITER.								
1	10. 27. 25	0. 59 S	10. 16. 53	0. 56 S	16. 41 S	21. 19	4. 50	
7	10. 27. 58	1. 0	10. 17. 51	0. 56	16. 23	21. 22	4. 28	
13	10. 28. 30	1. 0	10. 18. 54	0. 55	16. 3	21. 26	4. 6	
19	10. 29. 3	1. 1	10. 20. 1	0. 55	15. 42	21. 31	3. 44	
25	10. 29. 35	1. 1	10. 21. 11	0. 55	15. 19	21. 35	3. 22	
♄ SATURN. □ 7 ^d . 23 ^h .								
1	5. 8. 32	1. 48 N	5. 14. 34	1. 48 N	7. 44 N	11. 6	18. 35	
7	5. 8. 44	1. 49	5. 14. 48	1. 49	7. 40	11. 7	18. 10	
13	5. 8. 57	1. 49	5. 14. 59	1. 51	7. 38	11. 8	17. 45	
19	5. 9. 9	1. 49	5. 15. 6	1. 53	7. 37	11. 8	17. 19	
25	5. 9. 22	1. 50	5. 15. 8	1. 54	7. 37	11. 8	16. 52	
♅ GEORGIAN.								
1	10. 13. 48	0. 40 S	10. 11. 16	0. 40 S	18. 3 S	20. 56	4. 27	
11	10. 13. 54	0. 40	10. 11. 38	0. 39	17. 57	20. 57	3. 45	
21	10. 14. 0	0. 40	10. 12. 4	0. 39	17. 49	20. 59	3. 3	
31	10. 14. 7	0. 41	10. 12. 33	0. 39	17. 40	21. 1	2. 21	

Days of the Week.	Days of the Month.	THE MOON'S			
		Longitude.		Latitude.	
		Noon.	Midnight.	Noon.	Midnight.
		S. D. M. S.	S. D. M. S.	D. M. S.	D. M. S.
Th.	1	7. 7. 31. 13	7. 13. 35. 8	4. 59. 39 N	5. 2. 9 N
F.	2	7. 19. 37. 21	7. 25. 38. 1	5. 1. 14	4. 56. 57
Sa.	3	8. 1. 37. 19	8. 7. 35. 23	4. 49. 24	4. 38. 41
Sun.	4	8. 13. 32. 22	8. 19. 28. 26	4. 24. 56	4. 8. 19
M.	5	8. 25. 23. 45	9. 1. 18. 32	3. 49. 2	3. 27. 16
Tu.	6	9. 7. 13. 2	9. 13. 7. 29	3. 3. 15	2. 37. 13
W.	7	9. 19. 2. 12	9. 24. 57. 32	2. 9. 24	1. 40. 5
Th.	8	10. 0. 53. 55	10. 6. 51. 48	1. 9. 33	0. 38. 5 N
F.	9	10. 12. 51. 42	10. 18. 54. 9	0. 5. 59 N	0. 26. 27 S
Sa.	10	10. 24. 59. 42	11. 1. 8. 57	0. 58. 53 S	1. 30. 59
Sun.	11	11. 7. 22. 32	11. 13. 41. 3	2. 2. 23	2. 32. 43
M.	12	11. 20. 5. 7	11. 26. 35. 17	3. 1. 36	3. 28. 36
Tu.	13	0. 3. 12. 4	0. 9. 55. 53	3. 53. 16	4. 15. 10
W.	14	0. 16. 47. 1	0. 23. 45. 39	4. 33. 50	4. 48. 48
Th.	15	1. 0. 51. 46	1. 8. 5. 9	4. 59. 37	5. 5. 53
F.	16	1. 15. 25. 21	1. 22. 51. 41	5. 7. 15	5. 3. 29
Sa.	17	2. 0. 23. 17	2. 7. 59. 3	4. 54. 27	4. 40. 11
Sun.	18	2. 15. 37. 45	2. 23. 17. 57	4. 20. 49	3. 56. 40
M.	19	3. 0. 58. 12	3. 8. 37. 6	3. 28. 12	2. 56. 2
Tu.	20	3. 16. 13. 17	3. 23. 45. 34	2. 20. 53	1. 43. 30
W.	21	4. 1. 12. 54	4. 8. 34. 28	1. 4. 41 S	0. 25. 15 S
Th.	22	4. 15. 49. 40	4. 22. 58. 5	0. 14. 3 N	0. 52. 34 N
F.	23	4. 29. 59. 32	5. 6. 53. 59	1. 29. 42	2. 4. 55
Sa.	24	5. 13. 41. 35	5. 20. 22. 35	2. 37. 46	3. 7. 55
Sun.	25	5. 26. 57. 19	6. 3. 26. 14	3. 35. 6	3. 59. 5
M.	26	6. 9. 49. 48	6. 16. 8. 30	4. 19. 44	4. 36. 57
Tu.	27	6. 22. 22. 50	6. 28. 33. 20	4. 50. 40	5. 0. 51
W.	28	7. 4. 40. 30	7. 10. 44. 49	5. 7. 29	5. 10. 36
Th.	29	7. 16. 46. 44	7. 22. 46. 40	5. 10. 15	5. 6. 29
F.	30	7. 28. 44. 57	8. 4. 42. 0	4. 59. 24	4. 49. 5
Sa.	31	8. 10. 38. 7	8. 16. 33. 36	4. 35. 40	4. 19. 17

Days of the Month.		THE MOON'S					
		Age.	Pass. Merid.	Right Ascension.		Declination.	
				Noon.	Midnight.	Noon.	Midnight.
				D. M. S.	D. M. S.	D. M. S.	D. M. S.
1	29		22. 40	216. 48. 24	222. 39. 45	9. 18. 16 S	11. 7. 17 S
2	30		23. 25	228. 33. 39	234. 30. 38	12. 48. 59	14. 22. 24
3	1	♂		240. 31. 6	246. 35. 10	15. 46. 36	17. 0. 38
4	2		0. 11	252. 42. 47	258. 53. 42	18. 3. 39	18. 54. 57
5	3		0. 57	265. 7. 26	271. 23. 25	19. 33. 53	19. 59. 57
6	4		1. 45	277. 40. 57	283. 59. 14	20. 12. 47	20. 12. 14
7	5		2. 33	290. 17. 29	296. 35. 0	19. 58. 15	19. 30. 58
8	6		3. 20	302. 51. 12	309. 5. 38	18. 50. 35	17. 57. 31
9	7		4. 6	315. 18. 6	321. 28. 34	16. 52. 15	15. 35. 21
10	8		4. 53	327. 37. 13	333. 44. 28	14. 7. 32	12. 29. 32
11	9		5. 39	339. 50. 58	345. 57. 33	10. 42. 7	8. 46. 12
12	10		6. 25	352. 5. 17	358. 15. 19	6. 42. 45	4. 32. 49 S
13	11		7. 12	4. 28. 59	10. 47. 43	2. 17. 37 S	0. 1. 32 N
14	12		8. 1	17. 12. 59	23. 46. 20	2. 23. 3 N	4. 45. 12
15	13		8. 52	30. 29. 12	37. 22. 53	7. 5. 59	9. 23. 9
16	14		9. 47	44. 28. 26	51. 46. 28	11. 34. 11	13. 36. 22
17	15		10. 45	59. 17. 7	66. 59. 48	15. 26. 53	17. 2. 51
18	16		11. 47	74. 53. 6	82. 54. 46	18. 21. 40	19. 21. 1
19	17		12. 50	91. 1. 49	99. 10. 44	19. 59. 10	20. 15. 5
20	18		13. 52	107. 17. 44	115. 19. 11	20. 8. 32	19. 40. 8
21	19		14. 52	123. 11. 53	130. 53. 21	18. 51. 13	17. 43. 39
22	20		15. 48	138. 21. 53	145. 36. 38	16. 19. 45	14. 42. 1
23	21		16. 40	152. 37. 30	159. 24. 59	12. 52. 59	10. 55. 7
24	22		17. 29	166. 0. 1	172. 23. 55	8. 50. 39	6. 41. 40
25	23		18. 15	178. 38. 8	184. 44. 16	4. 30. 1	2. 17. 19 N
26	24		18. 59	190. 43. 55	196. 38. 40	0. 5. 3 N	2. 5. 30 S
27	25		19. 42	202. 30. 2	208. 19. 28	4. 13. 8 S	6. 16. 49
28	26		20. 26	214. 8. 17	219. 57. 41	8. 15. 31	10. 8. 16
29	27		21. 10	225. 48. 43	231. 42. 15	11. 54. 9	13. 32. 14
30	28		21. 55	237. 38. 55	243. 39. 11	15. 1. 34	16. 21. 20
31	29		22. 41	249. 43. 19	255. 51. 20	17. 30. 41	18. 28. 49

Days of the Week.	Days of the Month.	THE MOON's				Proportional Logarithm.	
		Semidiameter.		Hor. Parallax.			
		Noon.	Midnight.	Noon.	Midnight.		
		M. S.	M. S.	M. S.	M. S.	Noon.	Midn.
Th.	1	14. 53	14. 50	54. 38	54. 28	5178	5191
F.	2	14. 48	14. 46	54. 19	54. 12	5203	5213
Sa.	3	14. 44	14. 43	54. 6	54. 1	5221	5227
Sun.	4	14. 42	14. 42	53. 57	53. 55	5233	5235
M.	5	14. 42	14. 42	53. 54	53. 54	5237	5237
Tu.	6	14. 42	14. 43	53. 56	53. 59	5234	5230
W.	7	14. 44	14. 46	54. 4	54. 10	5223	5215
Th.	8	14. 48	14. 51	54. 18	54. 28	5205	5191
F.	9	14. 54	14. 58	54. 40	54. 54	5175	5157
Sa.	10	15. 2	15. 7	55. 10	55. 28	5136	5112
Sun.	11	15. 12	15. 18	55. 48	56. 10	5086	5058
M.	12	15. 25	15. 32	56. 35	57. 1	5026	4993
Tu.	13	15. 40	15. 48	57. 29	57. 58	4957	4921
W.	14	15. 56	16. 4	58. 27	58. 56	4885	4849
Th.	15	16. 12	16. 19	59. 25	59. 52	4814	4781
F.	16	16. 26	16. 32	60. 17	60. 39	4751	4724
Sa.	17	16. 37	16. 41	60. 57	61. 11	4703	4686
Sun.	18	16. 43	16. 44	61. 21	61. 26	4675	4669
M.	19	16. 44	16. 43	61. 26	61. 20	4669	4676
Tu.	20	16. 40	16. 36	61. 10	60. 56	4688	4704
W.	21	16. 31	16. 25	60. 37	60. 14	4727	4754
Th.	22	16. 18	16. 10	59. 49	59. 22	4784	4817
F.	23	16. 2	15. 54	58. 53	58. 23	4853	4890
Sa.	24	15. 46	15. 39	57. 53	57. 25	4927	4962
Sun.	25	15. 32	15. 25	56. 59	56. 33	4995	5028
M.	26	15. 18	15. 12	56. 9	55. 47	5059	5088
Tu.	27	15. 6	15. 1	55. 26	55. 8	5115	5139
W.	28	14. 57	14. 53	54. 52	54. 38	5160	5178
Th.	29	14. 50	14. 47	54. 26	54. 16	5194	5207
F.	30	14. 45	14. 43	54. 8	54. 2	5218	5226
Sa.	31	14. 42	14. 42	53. 58	53. 56	5231	5234

DISTANCES of the Moon's Centre from the SUN, and from STARS EAST of her.

Stars' Names.	Days	Noon.		III ^h .		VI ^h .		IX ^h .		Midnight.	XV ^h .		XVIII ^h .		XXI ^h .	
		D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.		D.	M. S.	D.	M. S.	D.	M. S.
α Pegasi.	5	-	-	-	-	-	-	-	-	79. 16. 6	77. 54. 24	76. 32. 46	75. 11. 13	75. 11. 13	75. 11. 13	75. 11. 13
	6	73. 49. 45		72. 28. 23		71. 7. 7		69. 45. 57		68. 24. 54	67. 3. 59	65. 43. 11	64. 22. 33	64. 22. 33	64. 22. 33	64. 22. 33
	7	63. 2. 4		61. 41. 45		60. 21. 36		59. 1. 40		57. 41. 57	56. 22. 27	55. 3. 12	53. 44. 14	53. 44. 14	53. 44. 14	53. 44. 14
	8	52. 25. 34		51. 7. 12		49. 49. 13		48. 31. 39		47. 14. 31	45. 57. 52	44. 41. 45	43. 26. 12	43. 26. 12	43. 26. 12	43. 26. 12
	9	42. 11. 14		-		-		-		-	-	-	-	-	-	-
α Arietis.	9	82. 32. 52		81. 5. 19		79. 37. 38		78. 9. 49		76. 41. 51	75. 13. 44	73. 45. 29	72. 17. 5	72. 17. 5	72. 17. 5	72. 17. 5
	10	70. 48. 32		69. 19. 50		67. 50. 58		66. 21. 58		64. 52. 49	63. 23. 31	61. 54. 4	60. 24. 27	60. 24. 27	60. 24. 27	60. 24. 27
	11	58. 54. 41		57. 24. 47		55. 54. 45		54. 24. 37		52. 54. 22	51. 24. 0	49. 53. 34	48. 23. 4	48. 23. 4	48. 23. 4	48. 23. 4
	12	46. 52. 33		45. 22. 1		43. 51. 30		42. 21. 1		40. 50. 35	-	-	-	-	-	-
	12	-		-		-		-		70. 37. 47	68. 59. 13	67. 20. 15	65. 40. 52	65. 40. 52	65. 40. 52	65. 40. 52
Aldebaran.	13	64. 1. 5		62. 20. 53		60. 40. 16		58. 59. 13		57. 17. 45	55. 35. 51	53. 53. 30	52. 10. 42	52. 10. 42	52. 10. 42	52. 10. 42
	14	50. 27. 28		48. 43. 47		46. 59. 39		45. 15. 4		43. 30. 2	41. 44. 33	39. 58. 37	38. 12. 15	38. 12. 15	38. 12. 15	38. 12. 15
	15	36. 25. 26		34. 38. 11		32. 50. 30		31. 2. 23		29. 13. 51	-	-	-	-	-	-
	15	-		-		-		-		73. 37. 8	71. 49. 30	70. 1. 28	68. 13. 4	68. 13. 4	68. 13. 4	68. 13. 4
	16	66. 24. 19		64. 35. 15		62. 45. 50		60. 56. 7		59. 6. 8	57. 15. 52	55. 25. 20	53. 34. 36	53. 34. 36	53. 34. 36	53. 34. 36
Pollux.	17	51. 43. 42		49. 52. 39		48. 1. 27		46. 10. 6		44. 18. 42	42. 27. 20	40. 35. 58	38. 44. 37	38. 44. 37	38. 44. 37	38. 44. 37
	18	36. 53. 25		-		-		-		-	-	-	-	-	-	-
	18	71. 57. 16		70. 2. 30		68. 7. 38		66. 12. 41		64. 17. 41	62. 22. 39	60. 27. 36	58. 32. 34	58. 32. 34	58. 32. 34	58. 32. 34
	19	56. 37. 34		54. 42. 38		52. 47. 46		50. 52. 59		48. 58. 20	47. 3. 50	45. 9. 29	43. 15. 19	43. 15. 19	43. 15. 19	43. 15. 19
	20	41. 21. 22		39. 27. 39		37. 34. 9		35. 40. 55		33. 47. 58	31. 55. 19	30. 2. 58	28. 10. 57	28. 10. 57	28. 10. 57	28. 10. 57
Regulus.	21	26. 19. 16		-		-		-		-	-	-	-	-	-	-
	21	-		-		-		-		-	-	-	-	-	-	-

DISTANCES of the MOON'S *Centre* from the SUN, and from STARS *WEST* of her.

Stars' Names.	Days	Noon.		III. ^h		VI. ^h		IX. ^h		Midnight.		XV. ^h		XVIII. ^h		XXI. ^h	
		D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	
The Sun.	7	-	-	-	-	-	-	-	-	39.47.41	41. 8.43	42.29.52	43.51. 8				
	8	45.12.31	46.34. 1	47.55.39	49.17.26	50.39.21	52. 1.25	53.23.38	54.46. 1								
	9	56. 8.34	57.31.17	58.54.11	60.17.16	61.40.33	63. 4. 2	64.27.44	65.51.38								
	10	67.15.45	68.40. 6	70. 4.41	71.29.32	72.54.37	74.19.58	75.45.36	77.11.33								
	11	78.37.45	80. 4.15	81.31. 4	82.58.11	84.25.38	85.53.25	87.21.32	88.50. 0								
	12	90.18.49	91.48. 0	93.17.33	94.47.29	96.17.47	97.48.29	99.19.35	100.51. 5								
	13	102.23. 0	103.55.19	105.28. 4	107. 1.14	108.34.50	110. 8.51	111.43.18	113.18.12								
α Aquilæ.	14	114.53.32	116.29.18	118. 5.31	119.42.11	121.19.18	-	-	-	-	-	-	-	-	-	-	
	12	58.16.40	59.37.58	61. 0. 3	62.22.54	63.46.28	65.10.45	66.35.44	68. 1.24								
	13	69.27.42	70.54.38	72.22.11	73.50.20	75.19. 3	76.48.21	78.18.12	79.48.34								
Fomalhaut.	14	81.19.28	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	14	46.56.15	48.28.49	50. 2.20	51.36.44	53.12. 0	54.48. 6	56.25. 0	58. 2.41								
	15	59.41. 5	61.20.11	62.59.57	64.40.21	66.21.23	-	-	-	-	-	-	-	-	-	-	-
α Pegasi.	15	-	-	-	-	-	-	-	-	52.16.43	53.52.29	55.29.10	57. 6.42				
	16	58.45. 2	60.24.10	62. 4. 2	63.44.35	65.25.47	67. 7.34	68.49.55	70.32.47								
	17	72.16. 9	73.59.57	75.44. 9	77.28.43	79.13.38	-	-	-	-	-	-	-	-	-	-	-
α Arietis.	17	-	-	-	-	-	-	-	-	35.40.58	37.23.49	39. 7.39	40.52.22				
	18	42.37.55	44.24.12	46.11. 8	47.58.39	49.46.39	51.35. 1	53.23.43	55.12.44								
	19	57. 2. 0	58.51.26	60.41. 0	62.30.41	64.20.25	66.10. 9	67.59.52	69.49.33								
	20	71.39. 8	73.28.36	75.17.55	77. 7. 3	78.55.58	-	-	-	-	-	-	-	-	-	-	-
	21	85.12.31	86.54.11	88.31.4	89.58.11	91.29.32	92.54.37	94.19.58	95.45.36								

Stars' Names.	Days	Noon.		III ^h .		VI ^h .		IX ^h .		Midnight.		XV ^h .		XVIII ^h .		XXI ^h .	
		D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.
Aldebaran.	20	-	-	-	-	-	-	-	-	46. 21. 53	48. 14. 34	50. 6. 56	51. 58. 59				
	21	53. 50. 42	56. 42. 4	57. 33. 3	59. 23. 40	61. 13. 55	63. 3. 46	64. 53. 12	66. 42. 13	65. 40. 55	67. 27. 20	69. 13. 18	70. 58. 49				
	22	68. 30. 50	70. 19. 1	72. 6. 45	-	-	-	-	-	-	-	-	-	-	-	-	-
	23	82. 43. 52	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pollux.	23	39. 19. 11	41. 0. 57	42. 42. 27	44. 23. 40	46. 4. 35	47. 45. 12	49. 25. 29	51. 5. 27	48. 45. 51	50. 19. 35	51. 53. 1	53. 26. 11				
	24	52. 45. 6	54. 24. 23	56. 3. 18	57. 41. 52	59. 20. 6	60. 57. 57	62. 35. 26	64. 12. 35	59. 20. 6	60. 57. 57	62. 35. 26	64. 12. 35				
	25	65. 49. 24	67. 25. 51	69. 1. 57	70. 37. 43	72. 13. 9	73. 48. 15	75. 23. 2	76. 57. 29	72. 13. 9	73. 48. 15	75. 23. 2	76. 57. 29				
	26	78. 31. 38	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Regulus.	26	42. 27. 59	44. 2. 54	45. 37. 31	47. 11. 50	48. 45. 51	50. 19. 35	51. 53. 1	53. 26. 11	48. 45. 51	50. 19. 35	51. 53. 1	53. 26. 11				
	27	54. 59. 5	56. 31. 44	58. 4. 9	59. 36. 21	61. 8. 18	62. 40. 2	64. 11. 34	65. 42. 55	61. 8. 18	62. 40. 2	64. 11. 34	65. 42. 55				
	28	67. 14. 3	68. 45. 0	70. 15. 47	71. 46. 25	73. 16. 52	74. 47. 10	76. 17. 20	77. 47. 22	73. 16. 52	74. 47. 10	76. 17. 20	77. 47. 22				
	29	79. 17. 16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Spica ♀.	29	26. 16. 13	27. 42. 53	29. 9. 42	30. 36. 39	32. 3. 42	33. 30. 51	34. 58. 6	36. 25. 25	32. 3. 42	33. 30. 51	34. 58. 6	36. 25. 25				
	30	37. 52. 47	39. 20. 12	40. 47. 40	42. 15. 9	43. 42. 38	-	-	-	43. 42. 38	-	-	-	-	-	-	-

CONFIGURATIONS of the SATELLITES of JUPITER,
At VI o'Clock in the *Evening*.

1	2.●				○	.1	3.		4.
2			.2	3	1	○			4.
3			3.			○	.2	1.	4.
4			.3	.1		○		2.	4.
5	4.●			.2	.3	○	1.		
6	.1○			4.	.2	○		.3	
7			4.			○	.2	3.	1.●
8		4.				○	.1	3.	
9		4.		.2	1.	3.	○		
10		.4		3.			○	.2	.1
11		.4	.3	.1		○		2.	
12			.4		.2	.3	○	1.	
13				.2	.4	.1	○	.3	
14							○	.4	.2
15							○	.1	2.
16				.2	1.	3.	○		.4
17	.2○			3.			○	.1	.4
18			.3	.1			○	2.	4.
19				.3	.2		○	1.	4.
20			.2	.1			○	.3	4.
21							○	1.	2
22	4.●						○	2.	3.
23			4.	2.	1.		○		3.●
24			4.		3.		○	.1	
25		4.		.3	1.		○	2.	
26	.4			.3			○	1.	2.●
27		.4		.2	.1		○	.3	
28			.4				○	1.	2
29				.4	.1		○	2.	3.
30	1.●			.2			○	.3	.4○
31				3.	.2		○	.1	.4

EXPLANATION AND USE

OF THE

ARTICLES

CONTAINED IN

THE ASTRONOMICAL AND NAUTICAL EPHEMERIS.

BY THE LATE DR. MASKELYNE.

It may be proper first to premise, that all the Calculations of the *Ephemeris*, except of the Eclipses of Jupiter's Satellites, are made according to the apparent Time by the Meridian of the *Royal Observatory at Greenwich*: and the Sun's, Planets', and Moon's Places, with the Particulars depending on them in the II^d, IVth, Vth, VIth, and VIIth Pages of each Month, are computed to the Instant of apparent Noon, or that of the Sun's Centre passing the Meridian of *Greenwich*.

Apparent Time, at any Place, is that deduced immediately from the Sun, whether from the Observation of his passing the Meridian, from his Altitude observed at a Distance from the Meridian, or from his observed Rising or Setting. This Time is different from that shown by Clocks and Watches well regulated at Land, which is called equated or mean Time. This will be explained when we come to treat of the Equation of Time.

The Day is here supposed, according to the Method of Astronomers, to begin at Noon, or 12 Hours later than the civil Day of the same denomination, and to be counted up to 24 Hours, or the succeeding Noon, when the next day begins. Thus the Day of the Month and the Hour of the Day are the same in this Method as in the civil Account at Noon, and from Noon till Midnight; but from Midnight till Noon they differ; for whereas in the civil Account a fresh day is supposed to begin at Midnight, and the Hours to begin over again, in this Method the Day is still continued beyond Midnight, and the reckoning of the Hours is continued up to 24. Thus the Distances put down to January 10, XV Hours, belong to January 11, at Three in the Morning by civil Reckoning.

There are XII Pages for every Month. The first Column of the first Page of each Month contains the Day of the Week, expressed concisely by the initial Letter or Letters: the second the Day of the Month: the third Column exhibits the Sundays and Festivals of the Church of England, and other remarkable Days: the last Column shows at Top the Moon's Phases, or the Times of New and Full Moon, and of the first and last Quarter or two Quadratures with the Sun: beneath are contained miscellaneous Phenomena, namely, Eclipses of the Sun and Moon, and Occultations of Planets or fixed Stars not less than the fourth Magnitude, by the Moon, "as they should happen at *Greenwich* by the Tables;" the Conjunctions of the Moon with all Stars not less than the fourth Magnitude, which can be Occultations any where on the Globe, the Entrance of the Sun into the several Signs, and any other remarkable Phenomena.

The Stars are expressed by *Bayer's* Characters of Reference. The Conjunction of the Moon or a Planet with a Star is denoted by prefixing the Character of the Moon or Planet to that of the Star, the Time of the Conjunction being placed immediately before. "The Case is the same with respect to the Occultation of a Star or Planet by the Moon, only this is further distinguished by the Addition of Im. or Immersion, to signify the Disappearance behind the Moon; and Em. or Emersion, to signify the Re-appearance of the same. Thus $8^{\text{d}}. 16^{\text{h}}. 22'$ ♄ ♃, signifies that the Moon will be in Conjunction with the Star ♃ on the Eighth Day at $26^{\text{h}}. 22'$, exclusive of Parallax: and $10^{\text{d}}. 9^{\text{h}}. 14'$ Im. of ♄; $10^{\text{d}}. 10^{\text{h}}. 23'$ Em. signifies that the Moon will eclipse ♄ on the 10th Day, the Immersion being at $9^{\text{h}}. 14'$, and the Emersion at $10^{\text{h}}. 23'$, apparent Time at *Greenwich*."

An Eclipse of the Sun, or Occultation of a fixed Star by the Moon, if observed in a Place whose Latitude and Longitude are well determined, may be applied to the Correction of the Lunar Tables; but if made in a Place whose Latitude only is well known, may be applied to the Determination of the Longitude of the Place; but for this purpose an accurate Calculation must be made of the Moon's Parallaxes, "in Longitude and Latitude," which makes this Method of settling the Longitudes of Places, though a very accurate one, less convenient in Use for Persons not much versed in astronomical Calculations. However, this ought not to discourage Travellers or Mariners from endeavouring to make these Observations as often and as carefully as possible, when they shall happen to be at any Place whose Longitude they have Reason to think has not been well settled; since the necessary Calculations may be made at any Time afterwards by themselves, at Leisure, or referred to the Skill of Astronomers and Mathematicians.

Eclipses of the Moon are not liable to this Inconvenience; the Longitude of any Place, where the Eclipse has been observed, being deduced immediately by taking the Difference of the Time of the Observation and that set down in the *Ephemeris*, and converting it

into Degrees, at the rate of 15° to One Hour, &c. or more briefly by Table XIV. Page 38, of the Tables requisite to be used with the *Ephemeris*. But as the Beginning or Ending of an Eclipse of the Moon cannot be generally observed nearer than One Minute, and sometimes Two or Three Minutes of Time, the Longitudes of Places cannot be certainly determined by this Method from a single Observation of the Beginning or End nearer than a Degree. Even this Point of Exactness will often be of great Service. If both the Beginning and End of the Eclipse be observed, a greater Degree of Exactness will be attained.

The Conjunctions of the Moon with the Planets, or fixed Stars not less than the fourth Magnitude, which may prove Occultations in some inhabited Parts of the Globe, are evidently designed to instruct Mariners or Travellers to look out frequently for such Observations; which, if they happen to prove Occultations, and are carefully observed, will afford a certain Means of determining the Longitude of the Place of Observation.

The Two first Columns of the second Page of the Month contain the Day of the Week and Month, as before; next follow the Sun's Longitude, right Ascension in Time, Declination, and the Equation of Time with its Difference from Day to Day.

The Longitude of the Sun is made Use of in most of the succeeding Calculations of the *Ephemeris*, and may serve either to verify them, or to make other similar Calculations at a different Time of the Day; particularly it may serve, with the Help of the Moon's Longitude and Latitude, to find the Distance of the Moon from the Sun at any Time, independent of the Distances contained in the VIIIth, IXth, Xth, and XIth Pages of the Month. To find the Sun's Longitude at any Time different from Noon, Proportion must be made according to its daily Increase: saying, as 24^h is to the Hour from Noon reckoned by the Meridian of *Greenwich*, so is the daily Variation of the Sun's Longitude, to a fourth Number; which, added to the Sun's Longitude at the preceding Noon, gives the true Longitude at the given Time.

If the Time given be that of a Meridian different from *Greenwich*, it must be first reduced thereto, by adding or subtracting the Difference of Longitude turned into Time (at the Rate of One Hour to 15° , and One Minute of Time to 15 Minutes, or more briefly by Table XIV. Page 38, of the *Requisite Tables*) accordingly as the Place is to the West or to the East of *Greenwich*. Example: Suppose any one should want to know the Sun's Longitude, January 19, 1767, at $4^h. 35'$, being in $21^{\circ}. 15'$ Longitude East of *Greenwich*. The Difference of Longitude turned into Time is $1^h. 25'$, which subtracted from $4^h. 35'$, because the Place is East of *Greenwich*, leaves $3^h. 10'$ for the Time reduced to the Meridian of *Greenwich*. The Sun's Longitude the preceding Noon is $9^{\circ}. 29'. 18''. 2''$, and the following Noon it is $10^{\circ}. 0'. 19'. 4''$, the Difference is $1^{\circ}. 1'. 2''$, or $61'. 2''$, the daily Variation. Then say, as 24^h is to $3^h. 10'$, so is $61'. 2''$ to $8'. 3''$, which, added to $9^{\circ}. 29'. 18''. 2''$, the Sun's Longitude

on the preceding Noon, gives $9^{\circ}.29'.26''.5''$, the Sun's Longitude at the Time given. In like manner any other of the following Articles is to be found by the Help of the *Ephemeris*.

The Sun's Longitude serves also to compute the Aberration of the fixed Stars and Planets.

The Sun's right Ascension in Time is useful to the practical Astronomer in regular Observatories, who adjusts his Clocks by sidereal Time. It is also useful to him for converting apparent into sidereal Time; as suppose that of an Eclipse of Jupiter's Satellites, in order to know at what Time it may be expected to happen by his Clock: for this Purpose the Sun's right Ascension at the preceding Noon, together with the Increase of right Ascension from Noon, must be added to the apparent Time of the Phenomenon set down in the *Ephemeris*.

The Sun's right Ascension in Time serves also to compute the apparent Time of a known Star passing the Meridian: thus, subtract the Sun's right Ascension in Time at Noon from the Star's right Ascension in Time, the remainder is the apparent Time of the Star's passing the Meridian nearly; from which the proportional Part of the daily Increase of the Sun's right Ascension for this apparent Time from Noon being subtracted, leaves the correct Time of the Star's passing the Meridian.

Hence the apparent Time may be found from an observed Altitude of a known fixed Star, suppose one contained in Page 7 of the *Requisite Tables*; as will be explained hereafter.

The Sun's right Ascension in Time is also useful for computing the Time of the Moon and Planets' passing the Meridian, as will be shown under their proper Articles.

The Sun's Declination is necessary to find the Latitude, whether at Sea or Land, from the Meridian Altitude observed: it is also requisite for finding the Latitude from Two Altitudes observed, with the Interval of Time measured by a Watch; it serves for computing the Sun's Azimuth, having his Altitude and the Latitude of the Place given, in Order to find the Variation of the Compass; it is required, jointly with the Latitude of the Place and the Sun's horary Angle, to compute his Altitude if neglected to be observed at the time of taking the Moon's Distance from the Sun for finding the Longitude, being useful to facilitate the Calculations of the Effect of Refraction and Parallax upon the Distance; it is also necessary to calculate the apparent Time from an observed Altitude of the Sun at a Distance from the Meridian, the Latitude being given; or to compute the Time of the Sun's Setting or Rising; which, though a less accurate Method than the former of obtaining the Time, may yet be useful when that cannot be had. For any of these purposes the Sun's Declination must be found to the Time, given nearly, reduced to the Meridian of *Greenwich*, making Proportion according to the Daily Increase or Decrease, in like manner as was shown with respect to the Sun's Longitude.

The Equation of Time is a Correction, which added to, or subtracted from the apparent Time (according to its Title at the Top of the Column) gives equated or mean Time, or that which should be shown by a good Clock or Watch. Apparent Time is that which takes its beginning from the Passage of the Sun's Centre over the Meridian of any Place; and had the Sun no Motion in the Ecliptic, or were his Motion reduced to the Equator or in right Ascension uniform, he would always return to the Meridian after equal Intervals of Time. But his apparent Motion in the Ecliptic continually varying, and his Motion in right Ascension being rendered further unequal on account of the Obliquity of the Ecliptic to the Equator, from these Causes, it arises that the Intervals of his Return to the Meridian become unequal, and the Sun will gradually come too slow or too soon to the Meridian for an equal Motion, such as that of Clocks and Watches ought to be.

This Retardation or Acceleration of the Sun's coming to the Meridian is called the Equation of Time, and is contained in the last Column but one of Page II, and when applied according to its Title to the apparent Time, or that deduced immediately from the Sun, gives the mean or equated Time, whence the Error of a Clock or Watch may be found, and, if required, it may be corrected.

If it be proposed to convert mean Time into apparent, this is done by a contrary Process, by applying the Equation of Time to the mean Time given, with its Title or Sign changed; viz. subtracting instead of adding, and adding instead of subtracting.

The Equation of Time being set down in the *Ephemeris* for Noon at *Greenwich*, Proportion must be made according to the daily Difference, to find what it should be at any given Time reduced to the same Meridian, as in the preceding Articles. The last Column of this Page, containing the daily Differences of the Equation, is designed for this Purpose.

As often as it may be required to make any Calculations from astronomical Tables, and the Time given be apparent Time; it is necessary first to apply the Equation of Time thereto to convert it into mean Time, the Tables being disposed according to mean Motions. Thus the Articles contained in the *Ephemeris* answering to Noon were computed to 0^h increased, or 24 Hours of the preceding Day diminished, by the Equation of Time: and the Moon's Places set down for Midnight were computed to 12^h, increased or diminished by the Equation of Time.

What has been shown concerning the Equation of Time chiefly respects the Astronomer, the Mariner having nothing to do with it in computing his Longitude from the Moon's Distances from the Sun and Stars observed at Sea with the Help of the *Ephemeris*, all the Calculations thereof being adapted to apparent Time, the same which he will obtain by the Altitudes of the Sun or Stars in the manner hereafter prescribed.

But when Timekeepers are used at Sea, the apparent Time deduced from an Altitude of the Sun must be corrected by the Equation of Time, and the mean Time found compared with that shown by the Watch; the Difference will be the Longitude in Time from the Meridian by which the Watch was set, as near as the Going of the Watch can be depended upon.

The Equation of Time is computed by taking the Difference of the Sun's true right Ascension and his mean Longitude corrected by the Equation of the Equinoxes in right Ascension, and turning it into Time at the Rate of 1' to 15', &c. The Equation of Time will be additive or subtractive, as the Sun's true right Ascension is greater or less than his mean Longitude so corrected.

The Time of the Sun's Semidiameter passing the Meridian, Page III, serves to reduce an Observation of a Transit of the preceding or subsequent Limb over the Meridian to that of the centre, when only One was observed. It signifies a Portion of apparent Time, or even mean Time, the Difference being absolutely insensible upon so small an interval. It is found thus: Increase the Sun's Semidiameter in the ratio of the Co-sine of his Declination to the Radius, to find his Semidiameter in right Ascension, which turned into Time at the Rate of 1' to 15', and 1" to 15", gives the Time required. The Sun's Semidiameter in right Ascension is readily found by adding the Log. Co-sine of his Declination to the logistic Logarithm of his Semidiameter, the Sum is the logistic Logarithm of his Semidiameter in right Ascension, which divided by 15 gives the Time of his Semidiameter passing the Meridian. If the Clock by which the Observation is made be regulated according to the sidereal Time, this quantity must be increased in the Ratio of 365 to 366, if great precision is required. From the time of the Sun's Semidiameter passing the Meridian may also be found the Time of its passing the horizontal or vertical Wire of a Quadrant or Sextant, which on some Occasions may have its Use.

The Semidiameter of the Sun is necessary to reduce the observed Altitude of his upper or lower Limb to that of the Centre; also to reduce the observed Distance of the Moon's nearest Limb from the Sun's nearest Limb to the Distance of the Centres. It is also useful to Astronomers to verify or ascertain the exactness of the Scale of their Micrometers, by comparison with the Measure of the Sun's horizontal Diameter. This practice is particularly useful in solar Eclipses, when the Distance of the Cusps or the Versed Sine of the uneclipsed Part has been measured with the Micrometer.

The hourly Motion of the Sun is useful in computing solar and lunar Eclipses; also in correcting the assumed Longitude of the Ship, in order to find the Time from an Observation of the Distance of the Moon from the Sun, independent of the Distances contained in the *Nautical Ephemeris*. See *British Mariner's Guide*, Page 49, and Table at the end of the same, Page 25. The Logarithm of the Sun's Distance is useful in the Calculation of the Places of the

Planets and Comets. The Place of the Moon's Node signifies its mean Longitude, and is necessary for finding the Equation of the equinoctial Points both in Longitude and right Ascension, the Equation of the Obliquity of the Ecliptic, and the Deviations of the fixed Stars in right Ascension and Declination.

The Eclipses of Jupiter's Satellites are set down on the lower part of Page III, and to mean Time. They are well known to afford the readiest, and for general Practice the best Method of settling the Longitudes of Places at Land; and it is by their Means principally that Geography has been so much reformed since the Invention of Telescopes, and the Construction of Tables for calculating the Time of their happening; and the Position of the most distant Places determined with equal Accuracy to the nearest. It was hoped that some Means might be found of using proper Telescopes on Shipboard to observe these Eclipses: and could this be effected, it would be of great Service in ascertaining the Longitude of a Ship from time to time. In my Voyage to *Barbadoes*, under the Directions of the COMMISSIONERS OF LONGITUDE, in 1763, I made a full trial of the late Mr. *Irwin's* Marine Chair proposed for this purpose, but could not derive any advantage from the Use of it; and, considering the great power requisite in a Telescope for making these Observations well, and the Violence as well as Irregularities of the Motion of a Ship, I am afraid the complete Management of a Telescope on Shipboard will always remain among the Desiderata. However, I would not be understood to mean to discourage any attempt founded upon good Principles to get over this Difficulty.

The Telescopes, proper for observing the Eclipses of Jupiter's Satellites, are reflecting Telescopes of 18 Inches or 2 Feet focal Length; and Telescopes, of Mr. *Dollond's* Construction, with Two Object Glasses from 5 to 10 Feet; or, which are still more convenient, those of 46 Inches focal Length, $3\frac{2}{3}$ Inches aperture, constructed with Three Object Glasses, which are as manageable as reflecting Telescopes, and perform as much as those which he makes of 10 Feet with Two Object Glasses.

The Eclipses of Jupiter's Satellites are observed by Astronomers at Land, as well in order to provide Materials for improving the Theories and Tables of their Motions, as for the sake of comparison with the corresponding Observations which may be made by Persons in different Parts of the Globe, whereby the Longitude of such Places will be accurately ascertained. It is indeed to be lamented that Persons, who visit distant Countries, are not more diligent to multiply Observations of this Kind; for want of which, the Observations made by Astronomers in established Observatories lose half their Use, and the Improvement of Geography is retarded. But it is to be hoped that an Emulation will spring up among those who may have Opportunities of rendering so useful a Service to the Public, to incite them to watch diligently for the Occasions of observing these Eclipses carefully, particularly of the First and

Second, which are most exact for the Purpose. The Eclipses, carefully calculated and set down in the *Ephemeris*, will serve to advertise them and Observers in general of the Times when they should attend to these Observations. The Person, who shall be under any Meridian different from *Greenwich*, must turn his Difference of Longitude into Time; (see *Requisite Tables*, Page 38.) and add it to or subtract it from the Time of the Eclipse set down in the *Ephemeris*, according as he is to the East or West of *Greenwich*, to find the mean Time at which the Eclipse will happen at his Meridian nearly. He must further take care to regulate his Watch or Clock by mean Time, or at least to know the Difference, as well in order to apprise him of the Time to look out for the Eclipse, as for ascertaining the apparent Time exactly at which he shall observe it. Equal Altitudes of the Sun or Stars, taken with an Astronomical Quadrant, afford the best Means of regulating Clocks and Watches for occasional Observations; or they may be taken with a *Hadley's* Quadrant, by reflection from a Bason of Water or Quicksilver, or from the horizon of the Sea, if the Observer has an open Prospect, and is not elevated above 5 or 600 Feet above the level of the Sea. But, if Opportunity does not admit of taking equal Altitudes, the Time may be determined from One Altitude taken in any of the Methods above mentioned, at least Two or Three Points of the Compass distant from the Meridian, but the nearer to the East or West the better, the Latitude of the Place being known, or being found by Observations of the Meridian Altitude of the Sun or Stars made on Purpose. It will be better to take several Altitudes in order to take a mean of the Results for greater Certainty. And if one Star be observed to the East and the other to the West of the Meridian, the Time will be determined with rather more certainty. The manner of computing the apparent Time from the Altitude of the Sun or a Star is shown by Problems VI and VII, Pages 30 and 32 of the Explanation and Use of the *Requisite Tables*.

The Observer, being in a Place whose Longitude is well known, should be settled at his Telescope Three Minutes before the expected Time of an Immersion or Emersion of the Three first Satellites; and Ten Minutes before that of the fourth Satellite; but if the Longitude of the Place is very uncertain, he must begin to look out for the Eclipse proportionably sooner: thus, if the Longitude of the Place is uncertain to 3 Degrees, answering to 12 Minutes of Time, he ought to fix himself to his Telescope 12 Minutes sooner than is mentioned above. Nevertheless, when he has observed one Eclipse of any Satellite, and thereby found the Error of the Tables, he may allow the same Correction to the Calculations of the *Ephemeris* for several Months, which will advertise him very nearly of the Time of expecting the Eclipses of the same Satellite, and dispense with his attending so long.

The Immersions signify the Instant of the Disappearance of the Satellite by entering into the Shadow of Jupiter; and the Emersions signify the first Instant of its Appearance at coming out of the same.

They generally happen when the Satellite is at some Distance from the Body of Jupiter, except near the Opposition of Jupiter to the Sun, when the Satellite approaches nearer to his Body. Before the Opposition of Jupiter to the Sun, the Immersions and Emersions happen on the West Side of Jupiter, and after the Opposition on the East Side; but if an Astronomical Telescope be used, which reverses Objects, the Appearance will be directly the contrary. Before the Opposition, the Immersions only of the first Satellite are visible; and after the Opposition, the Emersions only. The same is generally the Case with respect to the second Satellite; but both the Phenomena of the same Eclipse are frequently observable in the Two outer Satellites. The Immersions and Emersions, marked with an Asterisc in the *Ephemeris*, are those visible at *Greenwich*.

To know if an Eclipse will be visible in any Place, find whether Jupiter be 8° above the Horizon of the Place, and the Sun as much below it. This may be done near enough by a celestial Globe: otherwise, the Time of the Sun's Rising and Setting may be found for any Latitude, by a Table of semidiurnal Arcs contained in the popular Book, called *The Mariner's Compass Rectified*, and many other Books; the Time of Jupiter's Rising and Setting may also be found from the Time of his passing the Meridian and Declination set down in the *Ephemeris*, with the Help of the same Table of semidiurnal Arcs; adding or subtracting the semidiurnal Arc answering to the same Declination of the Sun: remembering always, that if Jupiter's Declination and the Latitude of the Place are of the same Denomination, the semidiurnal Arc will be more than Six Hours, and if they are of contrary Denominations, will be less than Six Hours. But it may be more easily found whether the Eclipse will be visible at *Greenwich*, or whether it should be properly marked with an Asterisc, by the Tables, Page 28—31, annexed to the *Nautical Almanac* of 1772. For this purpose the mean Time, at which the Eclipse is expected to happen, found according to 1. 7, p. 152, must be turned into apparent Time, by applying the Equation of Time to it with a contrary Sign.

The Immersion or Emersion of any Satellite being carefully observed in any Place according to mean Time, the Longitude from *Greenwich* is found immediately by taking the Difference of the Observation from the corresponding Time shown in the *Ephemeris*, which must be turned into Degrees, &c. by *Requisite Tables*, Page 38; and will be East or West of *Greenwich*, as the Time observed is more or less than that of the *Ephemeris*.

Example:—Suppose an Emersion of the first Satellite should be observed at the *Cape of Good Hope*, April 16, 1805, at $13^{\text{h}}. 25'. 35''$, mean Time: the Time by the *Ephemeris* being $12^{\text{h}}. 12'. 2''$, the Difference is $1^{\text{h}}. 13'. 33''$, whence the Longitude of the *Cape* should be $18^{\circ}. 23'. 15''$, East of *Greenwich*, because the Time supposed to be observed at the *Cape* is more than that of the *Ephemeris*.

“It is to be observed, that a correspondent Observation of an

Eclipse of a Satellite of Jupiter, made under a well-known Meridian, is to be preferred to the Calculations of the *Ephemeris* for comparing with an Observation made in a Meridian whose Longitude is required; but if no corresponding Observation can be obtained, as is frequently the Case, it will be best to find what Correction the Calculations of the *Ephemeris* require by the nearest Observations to the given Time that can be obtained; which Correction, applied to the Calculation of the given Eclipse in the *Ephemeris*, renders it almost equivalent to an actual Observation."

The Longitudes and Latitudes of the Planets, Page IV. serve to show where to look for them in the Heavens, to enable Persons less skilled to distinguish them from the fixed Stars. They also show when they are in the most important Points of their Orbits, where it is most material to observe them. Their Declinations and the apparent Times of their passing the Meridian are particularly useful to Astronomers, who are furnished with Quadrants and Transit Instruments well fixed in the Meridian, in setting their Instruments for observing their right Ascensions and Declinations, and also to those who are only furnished with a Telescope fitted with a Micrometer.

The apparent Time of a Planet's passing the Meridian may be computed thus: the Planet's right Ascension being calculated from its Longitude and Latitude, and turned into Time, subtract the Sun's right Ascension at Noon in Time from it, to find the Time of the Planet's passing the Meridian nearly, which call T' ; take the Difference of the ☉ and Planet's daily Variations in right Ascension in Time, if the Planet is progressive in right Ascension, or the Sum, if it is retrograde, which call X ; then say, by the Rule of Proportion:

As $24^h \mp X : T :: X : e$; and $T \pm e$ will be the correct Time of the Planet's passing the Meridian. The upper Signs are to be used both to X and e , if the Planet's progressive Motion in right Ascension be greater than that of the Sun; in any other Case the lower Signs are to be made use of.

But perhaps it may be found more readily by continual Approximation, as follows: Take the proportional Part of the Difference or Sum of the ☉ and Planet's daily Motion in right Ascension, answering to the Time of the Planet's passing the Meridian, found nearly, in proportion to 24^h ; and take a further like proportional Part of this proportional Part; and again of this last, and so on as far as is necessary. The Sum of all these proportional Parts added to the Time of the Planet's passing the Meridian, found nearly if the Planet's progressive Motion in right Ascension is greater than that of the Sun, otherwise subtracted, gives the apparent Time of the Planet's passing the Meridian.

Example:—Let it be required to find the Time of the Moon's passing the Meridian, July 1, 1767.

The Sun's right Ascension in Time, July 1st, is $6^h. 40'. 25''$, and

July 2d, is $6^h.44'.33''$ by the *Ephemeris*. Therefore his daily Motion in right Ascension is $4'.8''$. The Moon's right Ascension, July 1st at Noon, by the *Ephemeris*, is $159^{\circ}.2'$, answering to $10^h.36'.8''$ of Time, and July 2d is $169^{\circ}.39'$, answering to $11^h.18'.36''$. The difference is $42'.28''$ of Time, from which $4'.8''$ being subtracted, leaves $38'.20''$. Subtract $6^h.40'.25''$, the Sun's right Ascension July 1st at Noon, from $10^h.36'.8''$ the Moon's right Ascension the same Noon, the remainder $3^h.55'.43''$ is the approximate Time of the Moon's passing the Meridian. The proportional Part of $38'.20''$, answering to this, is $6'.17''$, and the proportional Part of $6'.17''$ is $10''$; therefore $6'.17''$ and $10''$, or $6'.27''$ added to $3^h.55'.43''$ give $4^h.2'.10''$, the apparent Time of the Moon's passing the Meridian. In the *Ephemeris* it is $4^h.2'$. It may also be computed by taking the Difference of the Moon's right Ascension at Noon and Midnight, but then half the Sun's daily Variation in right Ascension must be made use of, and Proportion must be made for 12 instead of 24 Hours; and if the Moon passed the Meridian after Midnight, the Sun's right Ascension at Midnight must be used, which is a Mean between his right Ascensions on the preceding and subsequent Noon. For the Planets it will be sufficient to take the first proportional Part only.

The Days of the Oppositions, Quadratures, &c. of the Planets to the Sun, are Times at which they ought to be observed in fixed Observatories, for settling the Elements of their Orbits by a Series of several Years' Observations.

The Vth, VIth, VIIth, VIIIth, IXth, Xth, XIth Pages of each Month contain the Moon's Place, and all the Circumstances relating to her Motion and her Distances from the Sun and proper Stars, from which her Distance should be observed for finding the Longitude at Sea. The Longitude, Latitude, and Declination of the Moon and Time of her passing the Meridian, afford the like Uses with the same Circumstances of the Planetary Motions, and many more besides. For the sake of greater Precision, the Moon's Longitude, Latitude, right Ascension, Declination, Semidiameter, and Horizontal Parallax, with its proportional Logarithm, are computed Twice a Day to Noon and Midnight, and may readily be inferred to any intermediate Time with the greatest Exactness.

Example:—Let it be required to find the Moon's Longitude and Latitude, &c. July 16, 1767, at $16^h.22'.16''$.

First to find the Longitude.

The Moon's Longitude, July 16, at 12^h , is $0^{\circ}.6^{\circ}.40'.25''$, and July 17, at Noon, $0^{\circ}.13^{\circ}.47'.48''$, the Difference $7^{\circ}.7'.23''$ is the Moon's Motion in 12 Hours; say then, by the Rule of Proportion:

As 12^h is to $4^h.22'.16''$ (the excess of $16^h.22'.16''$ above 12^h) so is $7^{\circ}.7'.23''$ to $2^{\circ}.35'.41''$; but this must be corrected on account of the Moon's unequal Motion in 12 Hours, by the Table of Equation of second Difference, Page 169. For this Purpose, take out of the *Ephemeris* the Two Longitudes of the Moon next preceding the

given Time; and the Longitudes immediately following it, and set them down in Order one after another, as follows:—

	☽'s Long. by the <i>Ephemeris</i> .	1st Diff.	2d Diff.	Mean of 2d Diff.
1767,	s o i "	o i "	i "	i "
July 16, Noon	11. 29. 29. 34			
Midnight	0. 6. 40. 25	7. 10. 51		
17, Noon	0. 13. 47. 48	7. 7. 23	3. 28	3. 36
Midnight	0. 20. 51. 27	7. 3. 39	3. 44	

Take their Differences $7^{\circ}.10'.51''$, $7^{\circ}.7'.23''$, $7^{\circ}.3'.39''$; take the Differences of these Differences, or the second Differences $3'.28''$, $3'.44''$; and take their Mean, which is $3'.36''$. Now look for the Equation of second Difference, answering to $4^h.22'$ after Midnight, found on the Side, and $3'.36''$ at the Top, which will be found $=25''$, and which, according to the Remark at the Bottom of the Table, must be added to $2^{\circ}.35'.41''$, the first proportional Part, because the Motions in 12 Hours or first Differences are decreasing, the Sum $2^{\circ}.36'.6''$, added to $0^{\circ}.6'.40'.25''$, the Moon's Longitude at Midnight, gives $0^{\circ}.9'.16'.31''$, the Moon's true Longitude, and is as correct as the Longitudes from which it is deduced.

N.B. If the first Differences of the Four Longitudes of the Moon taken out first increase and then decrease, or *vice versâ*, first decrease and then increase, take Half the Difference of the Two second Differences for the Mean second Difference, with which take out the Equation of second Difference, and add or subtract it as the First first Difference is greater or less than the Third first Difference.

To find the Moon's Latitude.

Take out of the *Ephemeris* the Two Latitudes preceding and Two following the given Time, and set them down in Order, and take their first and second Differences, and the Mean of the Two second Differences; find the proportional Part of the Middle first Difference answering to the Hours and Minutes, &c. of the given Time after Noon or Midnight; which correct in the following Manner: entering Table of Equation of second Difference, with the Hour from Noon or Midnight on the Side, and the Mean second Difference at Top, take out the corresponding Number of Seconds, which added to or subtracted from the proportional Part found above, according as the Motion in 12 Hours or first Difference is decreasing or increasing; or more generally, according as First first Difference is greater or less than Third first Difference, gives the proportional Part corrected; which now added to, or subtracted from the Moon's Latitude at the preceding Noon or Midnight, as the Latitude in these 12 Hours is increasing or decreasing, gives the Moon's Latitude correct.

Example:—The Moon's Latitude is required, July 16, 1767, at 16^h. 22'. 16".

	D's Lat. by the <i>Ephemeris</i> .	1st Diff.	2d Diff.	Mean of 2d Diff.
1767,				
	° ' "	' "	' "	' "
July 16, Noon . . .	4. 31. 10 N.	18. 26		
Midnight	4. 49. 36	13. 50	4. 36	
17, Noon . . .	5. 3. 26	9. 6	4. 44	4. 40
Midnight	5. 12. 32			

The Moon's Latitude, July 16, at Midnight, being 4°. 49'. 36" N. and the Motion in the next 12 Hours being 13'. 50", say by Proportion:

As 12^h is to 4^h. 22'. 16", so is 13'. 50" to 5'. 2": but this must be corrected by adding 32", the Equation of second Difference, answering to the Hour 4^h. 22', and the Mean second Difference 4'. 40", because the first Differences are decreasing, or rather because the first of them 18'. 26", is greater than the last of them 9'. 6", therefore the proportional Part corrected is 5'. 2" + 32" = 5'. 34", which, added to 4°. 49'. 36", gives 4°. 55'. 10" N. the Moon's Latitude correct.

Remarks on some Circumstances necessary to be attended to, in order to obtain and apply the Correction of Second Differences rightly in computing the Moon's Latitude.

I. If the Moon's Latitude taken out of the *Ephemeris* for Noon and Midnight changes its Denomination from North to South or from South to North, the Sum of the Two Latitudes of contrary Denominations, where the change happens, is to be accounted the first Difference in that Place.

II. If the Three first Differences first increase and then decrease, or *vice versâ*, first decrease and then increase, Half the Difference of the Two second Differences is to be taken for the Mean second Difference.

III. If the Series of Four Latitudes taken out should first increase and then decrease about the Moon's greatest Latitudes, take the Sum of the Two first Differences standing on each Side of the greatest Latitude for the second Difference in that Place; correct the Moon's Latitude at Noon or Midnight by the simple proportional Part first found; and to the Latitude so corrected, add always in this Case the Equation of second Difference answering to the Mean second Difference.

Before I quit this Subject of Interpolation by second Differences, I shall point out another Method, by which the same End may be obtained more readily, and with fewer Rules, by those who are well acquainted with algebraic Subtraction and Addition, and the Manner of applying the Signs in those Operations. Subtract each Latitude from the following for the first Differences, to which

prefix the Sign — if the Latitudes decrease, and subtract each first Difference, thus found, from the following one of the same Order for the second Differences. Half the Sum of the Two second Differences, standing on each Side of the Interval to be interpolated, is to be accounted the Mean second Difference; the Equation, corresponding to it by the Table, is to be applied always with the contrary Sign.

These Operations are to be performed, and the Signs to be applied as in algebraic Subtraction and Addition. Note further, if the four given Latitudes change their Denomination, call the second Latitude +, and those of a contrary Denomination —.

The Moon's Declination may be found at any Hour in the same Manner as her Latitude; the Correction arising from second Differences is easily applied, as shown above.

The other Articles of Page VI. and VII. viz. the Moon's "Right Ascension," her Semidiameter, horizontal Parallax, with its proportional Logarithm, and the Distances contained in the Four last Pages of the Month, may be all found correctly by even Proportion, without requiring any Allowance on Account of second Differences. The proportional Part of the Moon's Longitude, &c. for any Hour, may be found very readily by the Help of the Table of proportional Logarithms, Page 39—55, of the *Requisite Tables*.

The Moon's Longitude and Latitude are used in computing the Distances from the Sun and Stars contained in the Four last Pages of the Month, "as well as the Appulses to Stars pointed out in Page I." and jointly with her Parallax and Semidiameter, are necessary for computing the Eclipses of the Sun and Moon, and the Occultations of fixed Stars and Planets by the Moon. They also facilitate the Calculation of the Longitude of any Place from an observed Eclipse of the Sun or Occultation of a Star, or Planet by the Moon: or, if the Meridian be well known, the Parallax and Semidiameter serve to deduce the Moon's true Place in the Heavens from the Observation, which, compared with that given by the *Ephemeris*, shows the Error of the Tables at the Time. The Moon's Semidiameter and Parallax are applied in correcting almost all Observations of the Moon. The proportional Logarithms of the Moon's Parallax serve further to facilitate the Calculations of Parallaxes.

The Moon's right Ascension and Declination are useful to compute her Altitude at any Time, particularly at the Observation of her Distance from the Sun or a Star, supposing it was neglected to be or could not be observed properly; which latter Case may sometimes happen in the Night, though I think but rarely; the utmost Accuracy therein not being required for the Calculations of Refraction and Parallax. See *British Mariner's Guide*, Page 57, and *Requisite Tables*, Page 35. The Moon's Declination, with her Semidiameter and Parallax, serve for finding the Latitude by the Meridian Altitude of her upper and lower Limb observed at Sea. See *British Mariner's Guide*, Page 93, and *Requisite Tables*, Page 16. The Moon's right Ascension and Declination serve also to compute

the Time from her Altitude observed at the Observation of her Distance from a Star; whence the Longitude may be inferred, though no Altitude of the Sun or a Star was taken for regulating the Time. See *British Mariner's Guide*, Page 61, and *Mr. Edwards's* 5th Problem annexed to the *Nautical Almanac* of 1781, Page 10.

The Distances of the Moon from the Sun and fixed Stars, contained in the VIIIth, IXth, Xth, and XIth Pages of the Month, are set down to every Three Hours of apparent Time by the Meridian of *Greenwich*, and are designed to relieve the Mariner from the Necessity of a Calculation, which he might think prolix and troublesome, and to enable him, when compared with the Distance observed carefully at Sea, to infer his Longitude readily and with little Danger of Mistake to a Degree of Exactness that may be thought sufficient for most Nautical Purposes. But useful and valuable as the Practice of this Method may be at present, it is not a Remark unworthy our Notice, that every future Improvement of the Lunar Tables, as well as the Instruments, will bring it nearer and nearer to Perfection.

The Moon's Distances are computed both from the Sun and proper Stars, and generally from One Object on each Side of her, to afford the Mariner a greater Number of Opportunities of Observation, and a Means of attaining a greater Degree of Exactness. The Distances from the Sun are computed between 40° and 120° of Distance. While the Moon is between the Distances of 20° and 40° from the Sun, her Distance is computed only from a Star on the contrary Side that the Sun is. When she is between the Distances of 40° and 90° from the Sun, her Distance is computed both from the Sun and from a Star on the contrary Side to the Sun; when the Moon is above 90° from the Sun, her Distance is computed from Two Stars, one on each side of her; though still her Distance is computed also from the Sun from 90° to 120° . Though the Distance of the Moon from the Sun or Star, well observed with a good Instrument, is sufficient to determine the Longitude with the help of the *Ephemeris*, always within [$\frac{1}{4}$ of] "a Degree," and generally much nearer, yet it will conduce to still greater Accuracy, if the Observer takes the Distance of the Moon from Two Stars, or the Sun and a Star, or, when the Moon is between 90° and 120° distant from the Sun, from the Sun and Two Stars, if he can be so lucky as to obtain these several Observations.

The Longitude being computed from the Observations made with each Star respectively, the Mean of the Results is to be taken as probably approaching nearest to the true Longitude. In particular the Moon's Distance should be taken from Two Stars, or the Sun and a Star on each Side of her, as often as Opportunity permits; since the Mean of the Results will probably be at least as exact again as either separately, I mean as far as depends on any Imperfection of the Instruments, and unavoidable small Errors arising in the use of them, Errors of these kinds having a natural Tendency to correct each other; for that small Error which arises from the imperfection of the Lunar Tables will affect the Result from either

Star equally. But the Error of *Mayer's* last Lunar Tables, as corrected from a Series of *Dr. Bradley's* Observations of 9 Years, by *Mr. Charles Mason* in 1778, and by *Mr. De la Place's* further Corrections, being those used for the *Nautical Almanacs* of 1805, and following Years, probably never exceeding 30', the uncertainty hence arising, in the Determination of the Longitude, can scarcely ever exceed 17 Miles of Longitude, and generally will be much less.

The Distances, set down in the *Ephemeris*, afford the Observer a ready means of knowing the Star from which the Moon's Distance is to be observed; for he has nothing to do but to set his Quadrant to the Distance computed roughly from the *Ephemeris*, neglecting the Seconds, at the apparent Time estimated nearly by the Meridian of *Greenwich*, and direct his sight to the East or West of the Moon, according as the Distance at *Greenwich* is found in the VIIIth and IXth, or Xth and XIth Pages of the Month: and having found the Moon upon the little Speculum, let him give a Sweep with the Quadrant to the right and left, and he will find the Star he seeks for, if above the Horizon and the Air be clear, nearly in a Line perpendicular to the Line of the Moon's Horns or longer Axis, or, which is the same Thing, in the Line of the Moon's shorter Axis produced. The Star is always one of the brightest, so that there is little Danger of mistaking another for it, if the preceding Directions are carefully observed. The Time at *Greenwich* is estimated nearly by turning the supposed Longitude from *Greenwich* into Time, by *Requisite Tables*, Page 38, and adding it to or subtracting it from the apparent Time at the Ship, as its Longitude is West or East of *Greenwich*. It will be sufficient if the Distance be computed from the *Ephemeris* within 10', or 20', for setting the Quadrant. The principal Use of the Distances of the Moon from the Sun and fixed Stars, namely, in determining the Longitude by comparison with the corresponding Distances observed at Sea is shown in Problem XI. Page 37, of *Requisite Tables*.

The Distances contained in the *Ephemeris* were computed strictly to Noon and Midnight, and thence interpolated for every Three Hours, according to the Method shown for computing the Moon's Latitude, Page 156-157, except that the Correction of second Differences, at the middle of the Interval to be interpolated, was taken $\frac{1}{8}$ of the Mean of the Two second Differences, and at the First and Third Quarter of the Interval was taken $\frac{3}{8}$ of the Correction just found at the Middle of the Interval; instead of consulting the Table, which would however have given the same Result. But, at the first 12 Hours, when the Distances of the Moon from a Star begin, and the last 12 Hours, when the Distances end, there being only One second Difference instead of Two second Differences on each Side to take a Mean of, this Method fails in these Cases, and therefore the following is to be substituted in its stead, being derived from Sir *Isaac Newton's* Solution of the Problem of drawing a Curve through the Extremities of any Number of given Ordinates.

From Four Distances at Noon and Midnight computed strictly, to interpolate Three Distances at the III^d, VIth, and IXth Hour of the first or last Interval.

Subtract each Distance from the following, for the first Difference, and prefix the Sign —, if the Distances decrease. Subtract each first Difference thus found from the following one of the same Order, for the second Difference: and in like manner subtract the First second difference from the following for the third Difference; applying the Signs as in algebraic Subtraction. Denote the first or last first Difference by b ; the first or last second Difference by c , accordingly as the Interpolation to be made is for the first or last 12 Hours; denote also the third Difference by d , and, a being put to signify the Distance at the Beginning of the Interval, the interpolated Distances will be as follows:—

$$\text{At III^d Hour of first Interval } a + \frac{1}{4}b - \frac{3}{32}c + \frac{7}{128}d,$$

$$\text{At VIth Hour of first Interval } a + \frac{1}{2}b - \frac{1}{8}c + \frac{1}{16}d,$$

$$\text{At IXth Hour of first Interval } a + \frac{3}{4}b - \frac{3}{32}c + \frac{5}{128}d;$$

Or,

$$\text{At III^d Hour of last Interval } a + \frac{1}{4}b - \frac{3}{32}c - \frac{5}{128}d,$$

$$\text{At VIth Hour of last Interval } a + \frac{1}{2}b - \frac{1}{8}c - \frac{1}{16}d,$$

$$\text{At IXth Hour of last Interval } a + \frac{3}{4}b - \frac{3}{32}c - \frac{7}{128}d.$$

In adapting these Formulæ to Numbers, great Care must be taken about the right Application of the Signs. Thus if b , c , or d is Negative, apply the Number expressing the Value of that Term of the Formula where it is found with a contrary Sign to that of the Formula.

Let me add in this Place, that if in filling up the first and last Intervals, a new second Difference has been supposed in arithmetical Progression with the Two given ones, in order to take a Mean between it and the first or last second Difference, the Interpolation at the Middle of the Interval or VIth Hour will be had true, the same as if the above Formulæ had been used. But at the Interpolation of the first and third Quarter there will be an Error of $\frac{1}{128}$ third Difference; which will be corrected, by applying $+\frac{1}{128}d$ or third Difference, to Number found at the first Quarter of the Interval, and $-\frac{1}{128}d$ to that found at the third Quarter of the Interval; equally the same whether it be the first or last Interval.

The Configurations of Jupiter's Satellites, Page XIIth and last, exhibit the apparent Positions of the Satellites with respect to each other, and to Jupiter, at such an Hour of the Evening or Night as they are most likely to be observed, and serve to distinguish the Satellites from one another. Jupiter is distinguished by the Mark \bigcirc , and the Satellites by Points with Figures annexed, the Figure 1 signifying the first Satellite, 2 the second Satellite, &c. When the

Satellite is approaching towards Jupiter, the Figure is put between Jupiter and the Point; and when the Satellite is receding from Jupiter, the Figure is put on the other Side of the Point. The Satellites are in the superior Parts of their Orbits, or furthest from the Earth, when they are marked to the right hand or West of Jupiter approaching him; or to the left hand or East of Jupiter receding from him; but are in the inferior Parts of their Orbits, or nearest to the Earth, when they are marked to the right hand or West of Jupiter receding from him, or to the left or East of Jupiter approaching him [: the Latitudes are wholly neglected in these Diagrams]. The Cipher \circ , sometimes annexed to the Figure of the Satellite towards the Margin, signifies that it is invisible on the Face of Jupiter; and the black Mark \bullet signifies that it is invisible, being eclipsed in Jupiter's Shadow, or behind Jupiter, eclipsed by his Body.

A Catalogue of the Longitudes and Latitudes of Nine Principal fixed Stars for the beginning of 1825, from the latest Observations. M. Obl. Ecl. 23°. 27'. 44", 1

Names of Stars.	Mean Long. Jan. 1, 1825.	Mean Lat. Jan. 1, 1825.	Ann. incr. of Long.	Ann. var. of Latitude.
α Arietis.	1. 5. 12. 58, 0	9. 57. 34, 6 N.	50, 275	+ 0, 161
Aldebaran.	2. 7. 20. 37, 6	5. 28. 47, 1 S.	50, 208	- 0, 335
Pollux.	3. 20. 48. 4, 2	6. 40. 18, 9 N.	49, 500	+ 0, 255
Regulus.	4. 27. 23. 50, 1	0. 27. 34, 8 N.	49, 944	+ 0, 220
Spica π .	6. 21. 23. 59, 4	2. 2. 25, 5 S.	50, 083	+ 0, 171
Antares.	8. 7. 19. 9, 1	4. 32. 43, 1 S.	50, 118	+ 0, 424
α Aquilæ.	9. 29. 18. 26, 3	29. 18. 34, 5 N.	50, 793	+ 0, 080
Fomalhaut.	11. 1. 23. 45, 5	21. 6. 46, 7 S.	50, 593	+ 0, 212
α Pegasi.	11. 21. 2. 55, 8	19. 24. 35, 4 N.	50, 110	+ 0, 098

Note.—It will be proper to deduct 3", 0 from each of these Longitudes in computing the Lunar Distances by the Tables at present in use.

A TABLE
OF
ATMOSPHERICAL REFRACTIONS
WITH CORRECTIONS
FOR THE HEIGHT OF
THE BAROMETER AND THERMOMETER,

A TABLE
OF
SECOND DIFFERENCES,
AND
THE TRUE PLACES
OF
SIXTY ONE PRINCIPAL STARS,
FOR 1831.

TABLE OF REFRACTIONS.

App. Altitude.	Refr. B. 30 Th. 50°	Diff. for 1' Alt.	Diff. for + 1 B°	Diff. for - 1° Fa.	App. Altitude.	Refr. B. 30 Th. 50°	Diff. for 1' Alt.	Diff. for + 1 B.	Diff. for - 1° Fa.
D.M.	M. S.	S.	S.	S.	D.M.	M.S.	S.	S.	S.
0. 0	33. 51	11, 7	74	8, 1	4. 0	11. 52	2, 2	24, 1	1, 70
5	32. 53	11, 3	71	7, 6	10	11. 30	2, 1	23, 4	1, 64
10	31. 58	10, 9	69	7, 3	20	11. 10	2, 0	22, 7	1, 58
15	31. 5	10, 5	67	7, 0	30	10. 50	1, 9	22, 0	1, 53
20	30. 13	10, 1	65	6, 7	40	10. 32	1, 8	21, 3	1, 48
25	29. 24	9, 7	63	6, 4	50	10. 15	1, 7	20, 7	1, 43
30	28. 37	9, 4	61	6, 1	5. 0	9. 58	1, 6	20, 1	1, 38
35	27. 51	9, 0	59	5, 9	10	9. 42	1, 5	19, 6	1, 34
40	27. 6	8, 7	58	5, 6	20	9. 27	1, 5	19, 1	1, 30
45	26. 24	8, 4	56	5, 4	30	9. 11	1, 4	18, 6	1, 26
50	25. 43	8, 0	55	5, 1	40	8. 58	1, 3	18, 1	1, 22
55	25. 3	7, 7	53	4, 9	50	8. 45	1, 3	17, 6	1, 19
1. 0	24. 25	7, 4	52	4, 7	6. 0	8. 32	1, 2	17, 2	1, 15
5	23. 48	7, 1	50	4, 6	10	8. 20	1, 2	16, 8	1, 11
10	23. 13	6, 9	49	4, 5	20	8. 9	1, 1	16, 4	1, 09
15	22. 40	6, 6	48	4, 4	30	7. 58	1, 1	16, 0	1, 06
20	22. 8	6, 3	46	4, 2	40	7. 47	1, 0	15, 7	1, 03
25	21. 37	6, 1	45	4, 0	50	7. 37	1, 0	15, 3	1, 00
30	21. 7	5, 9	44	3, 9	7. 0	7. 27	1, 0	15, 0	, 98
35	20. 38	5, 7	43	3, 8	10	7. 17	, 9	14, 6	, 95
40	20. 10	5, 5	42	3, 6	20	7. 8	, 9	14, 3	, 93
45	19. 43	5, 3	40	3, 5	30	6. 59	, 8	14, 1	, 91
50	19. 17	5, 1	39	3, 4	40	6. 51	, 8	13, 8	, 89
55	18. 52	4, 9	39	3, 3	50	6. 43	, 8	13, 5	, 87
2. 0	18. 29	4, 8	38	3, 2	8. 0	6. 35	, 7	13, 3	, 85
5	18. 5	4, 6	37	3, 1	10	6. 28	, 7	13, 1	, 83
10	17. 43	4, 4	36	3, 0	20	6. 21	, 7	12, 8	, 82
15	17. 21	4, 3	36	2, 9	30	6. 14	, 7	12, 6	, 80
20	17. 0	4, 1	35	2, 8	40	6. 7	, 7	12, 3	, 79
25	16. 40	4, 0	34	2, 8	50	6. 0	, 6	12, 1	, 77
30	16. 21	3, 9	33	2, 7	9. 0	5. 54	, 6	11, 9	, 76
35	16. 2	3, 7	33	2, 7	10	5. 47	, 6	11, 7	, 74
40	15. 43	3, 6	32	2, 6	20	5. 41	, 6	11, 5	, 73
45	15. 25	3, 5	32	2, 5	30	5. 36	, 6	11, 3	, 71
50	15. 8	3, 4	31	2, 4	40	5. 30	, 5	11, 1	, 71
55	14. 51	3, 3	30	2, 3	50	5. 25	, 5	11, 0	, 70
3. 0	14. 35	3, 2	30	2, 3	10. 0	5. 20	, 5	10, 8	, 69
5	14. 19	3, 1	29	2, 2	10	5. 15	, 5	10, 6	, 67
10	14. 4	3, 0	29	2, 2	20	5. 10	, 5	10, 4	, 65
15	13. 50	2, 9	28	2, 1	30	5. 5	, 5	10, 2	, 64
20	13. 35	2, 8	28	2, 1	40	5. 0	, 5	10, 1	, 63
25	13. 21	2, 7	27	2, 0	50	4. 56	, 4	9, 9	, 62
30	13. 7	2, 7	27	2, 0	11. 0	4. 51	, 4	9, 8	, 60
35	12. 53	2, 6	26	2, 0	10	4. 47	, 4	9, 6	, 59
40	12. 41	2, 5	26	1, 9	20	4. 43	, 4	9, 5	, 58
45	12. 28	2, 4	25	1, 9	30	4. 39	, 4	9, 4	, 57
50	12. 16	2, 4	25	1, 9	40	4. 35	, 4	9, 2	, 56
55	12. 3	2, 3	25	1, 8	50	4. 31	, 4	9, 1	, 55

TABLE OF REFRACTIONS.

App. Altitude.	Refr. B. 30 Th. 50°	Diff. for 1' Alt.	Diff. for + 1 B.	Diff. for - 1° Fa.	App. Altitude.	Refr. B. 30 Th. 50°	Diff. for 1' Alt.	Diff. for + 1 B.	Diff. for - 1° Fa.
D. M.	M. S.	S.	S.	S.	D.	M. S.	S.	S.	S.
12. 0	4.28, 1	,38	9,00	,556	42	1. 4, 6	,038	2,16	,130
10	4.24, 4	,37	8,86	,548	43	1. 2, 4	,036	2,09	,125
20	4.20, 8	,36	8,74	,541	44	1. 0, 3	,034	2,02	,120
30	4.17, 3	,35	8,63	,533	45	58, 1	,034	1,94	,117
40	4.13, 9	,33	8,51	,524	46	56, 1	,033	1,88	,112
50	4.10, 7	,32	8,41	,517	47	54, 2	,032	1,81	,108
13. 0	4. 7, 5	,31	8,30	,509	48	52, 3	,031	1,75	,104
10	4. 4, 4	,31	8,20	,503	49	50, 5	,030	1,69	,101
20	4. 1, 4	,30	8,10	,496	50	48, 8	,029	1,63	,097
30	3.58, 4	,30	8,00	,490	51	47, 1	,028	1,58	,094
40	3.55, 5	,29	7,89	,482	52	45, 4	,027	1,52	,090
50	3.52, 6	,29	7,79	,476	53	43, 8	,026	1,47	,088
14. 0	3.49, 9	,28	7,70	,469	54	42, 2	,026	1,41	,085
10	3.47, 1	,28	7,61	,464	55	40, 8	,025	1,36	,082
20	3.44, 4	,27	7,52	,458	56	39, 3	,025	1,31	,079
30	3.41, 8	,26	7,43	,453	57	37, 8	,025	1,26	,076
40	3.39, 2	,26	7,34	,448	58	36, 4	,024	1,22	,073
50	3.36, 7	,25	7,26	,444	59	35, 0	,024	1,17	,070
15. 0	3.34, 3	,24	7,18	,439	60	33, 6	,023	1,12	,067
30	3.27, 3	,22	6,95	,424	61	32, 3	,022	1,08	,065
16. 0	3.20, 6	,21	6,73	,411	62	31, 0	,022	1,04	,062
30	3.14, 4	,20	6,51	,399	63	29, 7	,021	,99	,060
17. 0	3. 8, 5	,19	6,31	,386	64	28, 4	,021	,95	,057
30	3. 2, 9	,18	6,12	,374	65	27, 2	,020	,91	,055
18. 0	2.57, 6	,17	5,98	,362	66	25, 9	,020	,87	,052
19. 0	2.47, 7	,16	5,61	,340	67	24, 7	,020	,83	,050
20	2.38, 7	,15	5,31	,322	68	23, 5	,020	,79	,047
21	2.30, 5	,13	5,04	,305	69	22, 4	,020	,75	,045
22	2.23, 2	,12	4,79	,290	70	21, 2	,020	,71	,043
23	2.16, 5	,11	4,57	,276	71	19, 9	,020	,67	,040
24	2.10, 1	,10	4,35	,264	72	18, 8	,019	,63	,038
25	2. 4, 2	,09	4,16	,252	73	17, 7	,018	,59	,036
26	1.58, 8	,09	3,97	,241	74	16, 6	,018	,56	,033
27	1.53, 8	,08	3,81	,230	75	15, 5	,018	,52	,031
28	1.49, 1	,08	3,65	,219	76	14, 4	,018	,48	,029
29	1.44, 7	,07	3,50	,209	77	13, 4	,017	,45	,027
30	1.40, 5	,07	3,36	,201	78	12, 3	,017	,41	,025
31	1.36, 6	,06	3,23	,193	79	11, 2	,017	,38	,023
32	1.33, 0	,06	3,11	,186	80	10, 2	,017	,34	,021
33	1.29, 5	,06	2,99	,179	81	9, 2	,017	,31	,018
34	1.26, 1	,05	2,88	,173	82	8, 2	,017	,27	,016
35	1.23, 0	,05	2,78	,167	83	7, 1	,017	,24	,014
36	1.20, 0	,05	2,68	,161	84	6, 1	,017	,20	,012
37	1.17, 1	,05	2,58	,155	85	5, 1	,017	,17	,010
38	1.14, 4	,05	2,49	,149	86	4, 1	,017	,14	,008
39	1.11, 8	,04	2,40	,144	87	3, 1	,017	,10	,006
40	1. 9, 3	,04	2,32	,139	88	2, 0	,017	,07	,004
41	1. 6, 9	,04	2,24	,134	89	1, 0	,017	,03	,002

Explanation of the Table of Refractions.

THIS Table is computed upon principles explained by Dr. YOUNG in the Philosophical Transactions for 1819; and it appears to agree more perfectly with the latest observations than any other table before published. The formula employed is

$.0002825 = v \frac{r}{s} + (2.47 + .5 v^2) \frac{r^2}{s^2} + 3600 v \frac{r^3}{s^3} + 3600 (1.235 + .25 v^2) \frac{r^4}{s^4}$; r being the refraction, v the sine of the altitude, and s the cosine.

The apparent altitude being found in the first column, the second shows the refraction when the barometer stands at 30 inches, which is its mean height on the level of the sea, and the thermometer at 50° of Fahrenheit. The third column contains the difference to be subtracted or added for every minute of altitude, reckoned from the nearest number in the first column. The fourth shows the number of seconds to be added for every inch that the height of the barometer exceeds 30, or to be subtracted for each inch that it wants of 30: and the last contains the number of seconds to be subtracted for each degree that the thermometer stands above 50°, or to be added for each degree that its height wants of 50°.

If great accuracy be required, we must also deduct from the observed height of the barometer .003 i. for each degree that the thermometer near it is above 50°, and add an equal quantity for an equal depression. In fact, however, the table, as it now stands, is found to require the temperature to be estimated from the height of the thermometer within; and if we employed the height of the thermometer without, which would be more consistent with the theory, it would probably be necessary to suppose the standard temperature of the table 48° only, [or rather 47°,] instead of 50°.

EXAMPLES.

1. At 7°. 18'. 13" Bar. 29.87 Ther. 66°, the Refr. is 6'. 52", 26, from 22 obs. of Bradley.
2. At 19°. 18'. 19" Bar. 30.045 Ther. 34°, the Refr. is 2'. 51", 5, from 3 obs. of Bradley.
3. At 13°. 43'. Bar. 29.85 Ther. 45°, the Refr. is 3'. 55", 85, from 156 obs. of Mr. Pond.

1. Alt. 7°. 20' R. 7'. 8"	Diff. Alt. "	9	B. 14", 3	Th. ", 93
+ 1, 62	1'. 47" = 1'. 8	- .13		- 16
7. 9, 62	+ 1, 62	1, 86		14, 88
16, 74				1, 86
6. 52, 88				16, 74
6. 52, 26				

Error..... 0, 62

2. Alt. 19° R. 2'. 47", 7	Diff. Alt. ", 16	B. 5", 61	Th. ", 34
- 2, 93	18'. 19" = 18. 3	+ .045	+ 16
2. 44, 77	- 2, 93	, 252	5, 44
, 25			
5, 44			

Error 1", 0 2. 50, 46

3. Alt. 13°. 40' R. 3'. 55", 5	Diff. Alt. ", 29	B. 7", 89	Th. ", 482
+ , 36	3	. 15	5
3. 55, 86	-, 87	- 1, 18	+ 2, 41
3. 55, 85		, 87	2, 05
		2, 05	+ , 36

Error..... , 01

**TABLE OF THE
EQUATION OF SECOND DIFFERENCES.**

Hours after Noon or Midnight.		Second differences taken for intervals of 12 hours.									
		0 Minute					1 Minute				
		10''	20''	30''	40''	50''	0''	10''	20''	30''	40''	50''
H.M.	H.M.	"	"	"	"	"	"	"	"	"	"
0. 0	12. 0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
0. 10	11. 50	0,1	0,1	0,2	0,3	0,3	0,4	0,5	0,5	0,6	0,7
0. 20	11. 40	0,1	0,3	0,4	0,5	0,7	0,8	0,9	1,1	1,2	1,4
0. 30	11. 30	0,2	0,4	0,6	0,8	1,0	1,2	1,4	1,6	1,8	2,0
0. 40	11. 20	0,3	0,5	0,8	1,0	1,3	1,6	1,8	2,1	2,4	2,6
0. 50	11. 10	0,3	0,6	1,0	1,3	1,6	1,9	2,3	2,6	2,9	3,2
1. 0	11. 0	0,4	0,8	1,1	1,5	1,9	2,3	2,7	3,1	3,4	3,8
1. 10	10. 50	0,4	0,9	1,3	1,8	2,2	2,6	3,1	3,5	3,9	4,4
1. 20	10. 40	0,5	1,0	1,5	2,0	2,5	3,0	3,5	4,0	4,4	4,9
1. 30	10. 30	0,5	1,1	1,6	2,2	2,7	3,3	3,8	4,4	4,9	5,5
1. 40	10. 20	0,6	1,2	1,8	2,4	3,0	3,6	4,2	4,8	5,4	6,0
1. 50	10. 10	0,6	1,3	1,9	2,6	3,2	3,9	4,5	5,2	5,8	6,5
2. 0	10. 0	0,7	1,4	2,1	2,8	3,5	4,2	4,9	5,6	6,3	6,9
2. 10	9. 50	0,7	1,5	2,2	3,0	3,7	4,4	5,2	5,9	6,7	7,4
2. 20	9. 40	0,8	1,6	2,3	3,1	3,9	4,7	5,5	6,3	7,0	7,8
2. 30	9. 30	0,8	1,6	2,5	3,3	4,1	4,9	5,8	6,6	7,4	8,2
2. 40	9. 20	0,9	1,7	2,6	3,5	4,3	5,2	6,0	6,9	7,8	8,6
2. 50	9. 10	0,9	1,8	2,7	3,6	4,5	5,4	6,3	7,2	8,1	9,0
3. 0	9. 0	0,9	1,9	2,8	3,8	4,7	5,6	6,6	7,5	8,4	9,4
3. 10	8. 50	1,0	1,9	2,9	3,9	4,9	5,8	6,8	7,8	8,7	9,7
3. 20	8. 40	1,0	2,0	3,0	4,0	5,0	6,0	7,0	8,0	9,0	10,0
3. 30	8. 30	1,0	2,1	3,1	4,1	5,2	6,2	7,2	8,3	9,3	10,3
3. 40	8. 20	1,1	2,1	3,2	4,2	5,3	6,4	7,4	8,5	9,5	10,6
3. 50	8. 10	1,1	2,2	3,3	4,3	5,4	6,5	7,6	8,7	9,8	10,9
4. 0	8. 0	1,1	2,2	3,3	4,4	5,6	6,7	7,8	8,9	10,0	11,1
4. 10	7. 50	1,1	2,3	3,4	4,5	5,7	6,8	7,9	9,1	10,2	11,3
4. 20	7. 40	1,2	2,3	3,5	4,6	5,8	6,9	8,1	9,2	10,4	11,5
4. 30	7. 30	1,2	2,3	3,5	4,7	5,9	7,0	8,2	9,4	10,5	11,7
4. 40	7. 20	1,2	2,4	3,6	4,8	5,9	7,1	8,3	9,5	10,7	11,9
4. 50	7. 10	1,2	2,4	3,6	4,8	6,0	7,2	8,4	9,6	10,8	12,0
5. 0	7. 0	1,2	2,4	3,6	4,9	6,1	7,3	8,5	9,7	10,9	12,2
5. 10	6. 50	1,2	2,5	3,7	4,9	6,1	7,4	8,6	9,8	11,0	12,3
5. 20	6. 40	1,2	2,5	3,7	4,9	6,2	7,4	8,6	9,9	11,1	12,3
5. 30	6. 30	1,2	2,5	3,7	5,0	6,2	7,4	8,7	9,9	11,2	12,4
5. 40	6. 20	1,2	2,5	3,7	5,0	6,2	7,5	8,7	10,0	11,2	12,5
5. 50	6. 10	1,2	2,5	3,7	5,0	6,2	7,5	8,7	10,0	11,2	12,5
6. 0	6. 0	1,3	2,5	3,8	5,0	6,3	7,5	8,8	10,0	11,3	12,5

When the second differences are positive, the correction is negative, and the reverse.

**TABLE OF THE
EQUATION OF SECOND DIFFERENCES.**

Hours after Noon or Midnight.		Second differences taken for intervals of 12 hours.											
		2 Minutes						3 Minutes					
		0"	10"	20"	30"	40"	50"	0"	10"	20"	30"	40"	50"
H.M.	H. M.	"	"	"	"	"	"	"	"	"	"	"	"
0. 0	12. 0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
0. 10	11. 50	0,8	0,9	1,0	1,0	1,1	1,2	1,2	1,3	1,4	1,4	1,5	1,6
0. 20	11. 40	1,6	1,8	1,9	2,0	2,2	2,3	2,4	2,6	2,7	2,8	3,0	3,1
0. 30	11. 30	2,4	2,6	2,8	3,0	3,2	3,4	3,6	3,8	4,0	4,2	4,4	4,6
0. 40	11. 20	3,1	3,4	3,7	3,9	4,2	4,5	4,7	5,0	5,2	5,5	5,8	6,0
0. 50	11. 10	3,9	4,2	4,5	4,8	5,2	5,5	5,8	6,1	6,5	6,8	7,1	7,4
1. 0	11. 0	4,6	5,0	5,3	5,7	6,1	6,5	6,9	7,3	7,6	8,0	8,4	8,8
1. 10	10. 50	5,3	5,7	6,1	6,6	7,0	7,5	7,9	8,3	8,8	9,2	9,7	10,1
1. 20	10. 40	5,9	6,4	6,9	7,4	7,9	8,4	8,9	9,4	9,9	10,4	10,9	11,4
1. 30	10. 30	6,6	7,1	7,7	8,2	8,8	9,3	9,8	10,4	10,9	11,5	12,0	12,6
1. 40	10. 20	7,2	7,8	8,4	9,0	9,6	10,2	10,8	11,4	12,0	12,6	13,2	13,8
1. 50	10. 10	7,8	8,4	9,1	9,7	10,4	11,0	11,6	12,3	12,9	13,6	14,2	14,9
2. 0	10. 0	8,3	9,0	9,7	10,4	11,1	11,8	12,5	13,2	13,9	14,6	15,3	16,0
2. 10	9. 50	8,9	9,6	10,4	11,1	11,8	12,6	13,3	14,1	14,8	15,5	16,3	17,0
2. 20	9. 40	9,4	10,2	11,0	11,7	12,5	13,3	14,1	14,9	15,7	16,4	17,2	18,0
2. 30	9. 30	9,9	10,7	11,5	12,4	13,2	14,0	14,8	15,7	16,5	17,3	18,1	19,0
2. 40	9. 20	10,4	11,2	12,1	13,0	13,8	14,7	15,6	16,4	17,3	18,1	19,0	19,9
2. 50	9. 10	10,8	11,7	12,6	13,5	14,4	15,3	16,2	17,1	18,0	18,9	19,8	20,7
3. 0	9. 0	11,3	12,2	13,1	14,1	15,0	15,9	16,9	17,8	18,8	19,7	20,6	21,6
3. 10	8. 50	11,7	12,6	13,6	14,6	15,5	16,5	17,5	18,5	19,4	20,4	21,4	22,3
3. 20	8. 40	12,0	13,0	14,0	15,0	16,0	17,1	18,1	19,1	20,1	21,1	22,1	23,1
3. 30	8. 30	12,4	13,4	14,5	15,5	16,5	17,6	18,6	19,6	20,7	21,7	22,7	23,8
3. 40	8. 20	12,7	13,8	14,9	15,9	17,0	18,0	19,1	20,2	21,2	22,3	23,3	24,4
3. 50	8. 10	13,0	14,1	15,2	16,3	17,4	18,5	19,6	20,7	21,7	22,8	23,9	25,0
4. 0	8. 0	13,3	14,4	15,5	16,7	17,8	18,9	20,0	21,1	22,2	23,3	24,4	25,6
4. 10	7. 50	13,6	14,7	15,9	17,0	18,1	19,3	20,4	21,5	22,7	23,8	24,9	26,1
4. 20	7. 40	13,8	15,0	16,1	17,3	18,5	19,6	20,8	21,9	23,1	24,2	25,4	26,5
4. 30	7. 30	14,1	15,2	16,4	17,6	18,8	19,9	21,1	22,3	23,4	24,6	25,8	27,0
4. 40	7. 20	14,3	15,4	16,6	17,8	19,0	20,2	21,4	22,6	23,8	25,0	26,1	27,3
4. 50	7. 10	14,4	15,6	16,8	18,0	19,2	20,4	21,6	22,9	24,1	25,3	26,5	27,7
5. 0	7. 0	14,6	15,8	17,0	18,2	19,4	20,7	21,9	23,1	24,3	25,5	26,7	28,0
5. 10	6. 50	14,7	15,9	17,2	18,4	19,6	20,8	22,1	23,3	24,5	25,7	27,0	28,2
5. 20	6. 40	14,8	16,0	17,3	18,5	19,8	21,0	22,2	23,5	24,7	25,9	27,2	28,4
5. 30	6. 30	14,9	16,1	17,4	18,6	19,9	21,1	22,3	23,6	24,8	26,1	27,3	28,6
5. 40	6. 20	15,0	16,2	17,4	18,7	19,9	21,2	22,4	23,7	24,9	26,2	27,4	28,7
5. 50	6. 10	15,0	16,2	17,5	18,7	20,0	21,2	22,5	23,7	25,0	26,2	27,5	28,7
6. 0	6. 0	15,0	16,3	17,5	18,8	20,0	21,3	22,5	23,8	25,0	26,3	27,5	28,8

When the second differences are negative, the correction is positive, and the reverse.

TABLE OF THE
EQUATION OF SECOND DIFFERENCES.

Hours after Noon or Midnight.		Second differences taken for intervals of 12 hours.											
		4 Minutes						5 Minutes					
		0''	10''	20''	30''	40''	50''	0''	10''	20''	30''	40''	50''
H.M.	H.M.	"	"	"	"	"	"	"	"	"	"	"	"
0. 0	12. 0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
0. 10	11. 50	1,6	1,7	1,8	1,8	1,9	2,0	2,1	2,1	2,2	2,3	2,3	2,4
0. 20	11. 40	3,2	3,4	3,5	3,6	3,8	3,9	4,1	4,2	4,3	4,5	4,6	4,7
0. 30	11. 30	4,8	5,0	5,2	5,4	5,6	5,8	6,0	6,2	6,4	6,6	6,8	7,0
0. 40	11. 20	6,3	6,6	6,8	7,1	7,3	7,6	7,9	8,1	8,4	8,7	8,9	9,2
0. 50	11. 10	7,8	8,1	8,4	8,7	9,0	9,4	9,7	10,0	10,3	10,7	11,0	11,3
1. 0	11. 0	9,2	9,5	9,9	10,3	10,7	11,1	11,5	11,8	12,2	12,6	13,0	13,4
1. 10	10. 50	10,5	11,0	11,4	11,8	12,3	12,7	13,2	13,6	14,0	14,5	14,9	15,4
1. 20	10. 40	11,9	12,3	12,8	13,3	13,8	14,3	14,8	15,3	15,8	16,3	16,8	17,3
1. 30	10. 30	13,1	13,7	14,2	14,8	15,3	15,9	16,4	17,0	17,5	18,0	18,6	19,1
1. 40	10. 20	14,4	14,9	15,5	16,1	16,7	17,3	17,9	18,5	19,1	19,7	20,3	20,9
1. 50	10. 10	15,5	16,2	16,8	17,5	18,1	18,8	19,4	20,1	20,7	21,4	22,0	22,7
2. 0	10. 0	16,7	17,4	18,1	18,8	19,4	20,1	20,8	21,5	22,2	22,9	23,6	24,3
2. 10	9. 50	17,8	18,5	19,2	20,0	20,7	21,5	22,2	22,9	23,6	24,4	25,2	25,9
2. 20	9. 40	18,8	19,6	20,4	21,1	21,9	22,7	23,5	24,3	25,1	25,8	26,6	27,4
2. 30	9. 30	19,8	20,6	21,4	22,3	23,1	23,9	24,7	25,6	26,4	27,2	28,0	28,9
2. 40	9. 20	20,7	21,6	22,5	23,3	24,2	25,1	25,9	26,8	27,7	28,5	29,4	30,2
2. 50	9. 10	21,6	22,5	23,4	24,3	25,3	26,2	27,1	28,0	28,9	29,8	30,7	31,6
3. 0	9. 0	22,5	23,4	24,4	25,3	26,3	27,2	28,1	29,1	30,0	30,9	31,9	32,8
3. 10	8. 50	23,3	24,3	25,3	26,2	27,2	28,2	29,1	30,1	31,1	32,1	33,0	34,0
3. 20	8. 40	24,1	25,1	26,1	27,1	28,1	29,1	30,1	31,1	32,1	33,1	34,1	35,1
3. 30	8. 30	24,8	25,8	26,9	27,9	28,9	30,0	31,0	32,0	33,1	34,1	35,1	36,2
3. 40	8. 20	25,5	26,5	27,6	28,6	29,7	30,8	31,8	32,9	34,0	35,0	36,1	37,1
3. 50	8. 10	26,1	27,2	28,3	29,3	30,4	31,5	32,6	33,7	34,8	35,9	37,0	38,0
4. 0	8. 0	26,7	27,8	28,9	30,0	31,1	32,2	33,3	34,4	35,6	36,7	37,8	38,9
4. 10	7. 50	27,2	28,3	29,5	30,6	31,7	32,9	34,0	35,1	36,3	37,4	38,5	39,7
4. 20	7. 40	27,7	28,8	30,0	31,1	32,3	33,5	34,6	35,8	36,9	38,1	39,2	40,4
4. 30	7. 30	28,1	29,3	30,5	31,6	32,8	34,0	35,2	36,3	37,5	38,7	39,8	41,0
4. 40	7. 20	28,5	29,7	30,9	32,1	33,3	34,5	35,6	36,8	38,0	39,2	40,4	41,6
4. 50	7. 10	28,9	30,1	31,3	32,5	33,7	34,9	36,1	37,3	38,5	39,7	40,9	42,1
5. 0	7. 0	29,2	30,4	31,6	32,8	34,0	35,2	36,5	37,7	38,9	40,1	41,3	42,5
5. 10	6. 50	29,4	30,6	31,9	33,1	34,3	35,6	36,8	38,0	39,2	40,5	41,7	42,9
5. 20	6. 40	29,6	30,9	32,1	33,3	34,6	35,8	37,0	38,3	39,5	40,7	42,0	43,2
5. 30	6. 30	29,8	31,0	32,3	33,5	34,8	36,0	37,2	38,5	39,7	41,0	42,2	43,4
5. 40	6. 20	29,9	31,2	32,4	33,6	34,9	36,1	37,4	38,6	39,9	41,1	42,4	43,6
5. 50	6. 10	30,0	31,2	32,5	33,7	35,0	36,2	37,5	38,7	40,0	41,2	42,5	43,7
6. 0	6. 0	30,0	31,3	32,5	33,8	35,0	36,3	37,5	38,8	40,0	41,3	42,5	43,8

When the second differences are negative, the correction is positive, and the reverse.

TABLE OF THE
EQUATION OF SECOND DIFFERENCES.

Hours after Noon or Midnight.		Second differences taken for intervals of 12 hours.													
		6 Minutes						M	M	M	M	M	M	M	M
		0''	10''	20''	30''	40''	50''	7	8	9	10	11	12		
H.M.	H.M.	"	"	"	"	"	"	"	"	"	"	"	"	"	"
0. 0	12. 0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0		
0. 10	11. 50	2,5	2,5	2,6	2,7	2,7	2,8	2,9	3,3	3,7	4,1	4,5	4,9		
0. 20	11. 40	4,9	5,0	5,1	5,3	5,4	5,5	5,7	6,5	7,3	8,1	8,9	9,7		
0. 30	11. 30	7,2	7,4	7,6	7,8	8,0	8,2	8,4	9,6	10,8	12,0	13,2	14,4		
0. 40	11. 20	9,4	9,7	10,0	10,2	10,5	10,8	11,0	12,6	14,2	15,7	17,3	18,9		
0. 50	11. 10	11,6	12,0	12,3	12,6	12,9	13,2	13,6	15,5	17,4	19,4	21,3	23,3		
1. 0	11. 0	13,8	14,1	14,5	14,9	15,3	15,7	16,0	18,3	20,6	22,9	25,2	27,5		
1. 10	10. 50	15,8	16,2	16,7	17,1	17,6	18,0	18,4	21,1	23,7	26,3	29,0	31,6		
1. 20	10. 40	17,8	18,3	18,8	19,3	19,8	20,2	20,7	23,7	26,7	29,6	32,6	35,6		
1. 30	10. 30	19,7	20,2	20,8	21,3	21,9	22,4	23,0	26,3	29,5	32,8	36,1	39,4		
1. 40	10. 20	21,5	22,1	22,7	23,3	23,9	24,5	25,1	28,7	32,3	35,9	39,5	43,1		
1. 50	10. 10	23,3	23,9	24,6	25,2	25,9	26,5	27,2	31,1	34,9	38,8	42,7	46,6		
2. 0	10. 0	25,0	25,7	26,4	27,1	27,8	28,5	29,2	33,3	37,5	41,7	45,8	50,0		
2. 10	9. 50	26,6	27,4	28,1	28,9	29,6	30,3	31,1	35,5	39,9	44,4	48,8	53,3		
2. 20	9. 40	28,2	29,0	29,8	30,5	31,3	32,1	32,9	37,6	42,3	47,0	51,7	56,4		
2. 30	9. 30	29,7	30,5	31,3	32,2	33,0	33,8	34,6	39,6	44,5	49,5	54,4	59,4		
2. 40	9. 20	31,1	32,0	32,8	33,7	34,6	35,4	36,3	41,5	46,7	51,9	57,0	62,2		
2. 50	9. 10	32,5	33,4	34,3	35,2	36,1	37,0	37,9	43,3	48,7	54,1	59,5	64,9		
3. 0	9. 0	33,8	34,7	35,6	36,6	37,5	38,4	39,4	45,0	50,6	56,3	61,9	67,5		
3. 10	8. 50	35,0	35,9	36,9	37,9	38,9	39,8	40,8	46,6	52,4	58,3	64,1	69,9		
3. 20	8. 40	36,1	37,1	38,1	39,1	40,1	41,1	42,1	48,1	54,2	60,2	66,2	72,2		
3. 30	8. 30	37,2	38,2	39,3	40,3	41,3	42,4	43,4	49,6	55,8	62,0	68,2	74,4		
3. 40	8. 20	38,2	39,3	40,3	41,4	42,4	43,5	44,6	50,9	57,3	63,7	70,0	76,4		
3. 50	8. 10	39,1	40,2	41,3	42,4	43,5	44,6	45,7	52,2	58,7	65,2	71,7	78,3		
4. 0	8. 0	40,0	41,1	42,2	43,3	44,4	45,6	46,7	53,3	60,0	66,7	73,3	80,0		
4. 10	7. 50	40,8	41,9	43,1	44,2	45,3	46,5	47,6	54,4	61,2	68,0	74,8	81,6		
4. 20	7. 40	41,5	42,7	43,8	45,0	46,1	47,3	48,4	55,4	62,3	69,2	76,1	83,1		
4. 30	7. 30	42,2	43,4	44,5	45,7	46,9	48,0	49,2	56,3	63,3	70,3	77,3	84,4		
4. 40	7. 20	42,8	44,0	45,2	46,3	47,5	48,7	49,9	57,0	64,2	71,3	78,4	85,6		
4. 50	7. 10	43,3	44,5	45,7	46,9	48,1	49,3	50,5	57,7	64,9	72,2	79,4	86,6		
5. 0	7. 0	43,8	45,0	46,2	47,4	48,6	49,8	51,0	58,3	65,6	72,9	80,2	87,5		
5. 10	6. 50	44,1	45,4	46,6	47,8	49,0	50,3	51,5	58,8	66,2	73,6	80,9	88,3		
5. 20	6. 40	44,4	45,7	46,9	48,1	49,4	50,6	51,9	59,3	66,7	74,1	81,5	88,9		
5. 30	6. 30	44,7	45,9	47,2	48,4	49,7	50,9	52,1	59,6	67,0	74,5	81,9	89,4		
5. 40	6. 20	44,9	46,1	47,4	48,6	49,8	51,1	52,3	59,8	67,3	74,8	82,2	89,7		
5. 50	6. 10	45,0	46,2	47,5	48,7	50,0	51,2	52,5	60,0	67,4	74,9	82,4	89,9		
6. 0	6. 0	45,0	46,3	47,5	48,8	50,0	51,3	52,5	60,0	67,5	75,0	82,5	90,0		

When the second differences are negative, the correction is positive, and the reverse.

CORRECTIONS TO BE APPLIED TO THE MEAN PLACES
OF
SIXTY ONE PRINCIPAL FIXED STARS,
IN ORDER TO OBTAIN THE TRUE APPARENT PLACES.

1831.	61. α Andromedæ.				1. γ Pegasi.				2. α Cassiopeiæ.			
	Corrections for				Corrections for				Corrections for			
	A. R. <i>in Time.</i>		N. P. D.		A. R. <i>in Time.</i>		N. P. D.		A. R. <i>in Time.</i>		N. P. D.	
	s.	Diff.	"	Diff.	s.	Diff.	"	Diff.	s.	Diff.	"	Diff.
January 0 N.	-0,38	,16	- 5,3	1,1	-0,50	,13	- 0,5	1,0	+0,22	,27	-11,7	0,5
10	0,54	,14	4,2	1,2	0,63	,12	+ 0,5	1,0	-0,05	,28	11,2	1,1
20	0,68	,12	3,0	1,5	0,75	,11	1,5	1,0	0,33	,26	10,1	1,4
30	0,80	,11	- 1,5	1,6	0,86	,09	2,5	1,1	0,59	,23	8,7	1,8
February 9	0,91	,08	+ 0,1	1,6	0,95	,07	3,6	1,1	0,82	,19	6,9	2,2
19	0,99	,04	1,7	1,7	1,02	,04	4,7	0,9	1,01	,15	4,7	2,5
March . . 1	1,03	,01	3,4	1,6	1,06	,00	5,6	0,9	1,16	,09	- 2,2	2,5
11	1,04	,03	5,0	1,4	1,06	,03	6,5	0,6	1,25	,04	+ 0,3	2,6
21	1,01	,08	6,4	1,2	1,03	,07	7,1	0,4	1,29	,04	2,9	2,4
31	0,93	,13	7,6	0,9	0,96	,11	7,5	0,1	1,25	,11	5,3	2,3
April . . . 10	0,80	,17	8,5	0,6	0,85	,15	7,6	0,2	1,14	,18	7,6	2,0
20	0,63	,21	9,1	0,2	0,70	,19	7,4	0,5	0,96	,24	9,6	1,7
30	0,42	,25	9,3	0,2	0,51	,23	6,9	0,7	0,72	,30	11,3	1,2
May. . . . 10	-0,17	,28	9,1	0,6	0,28	,26	6,2	1,2	0,42	,34	12,5	0,8
20	+0,11	,30	8,5	0,9	-0,02	,28	5,0	1,3	-0,08	,40	13,3	0,3
30	0,41	,32	7,6	1,3	+0,26	,30	3,7	1,7	+0,32	,43	13,6	0,2
June 9	0,73	,33	6,3	1,7	0,56	,31	2,0	1,8	0,75	,45	13,4	0,7
19	1,06	,33	4,6	1,9	0,87	,30	+ 0,2	1,9	1,20	,47	12,7	1,2
29	1,39	,31	2,7	2,1	1,17	,30	- 1,7	2,1	1,67	,45	11,5	1,7
July 9	1,70	,30	+ 0,6	2,3	1,47	,29	3,8	2,1	2,12	,45	9,8	1,9
19	2,00	,28	- 1,7	2,4	1,76	,26	5,9	2,1	2,57	,43	7,9	2,4
29	2,28	,25	4,1	2,4	2,02	,24	8,0	2,1	3,00	,39	5,5	2,6
August. . . 8	2,53	,21	6,5	2,5	2,26	,20	10,1	2,0	3,39	,34	+ 2,9	2,9
18	2,74	,18	9,0	2,4	2,46	,17	12,1	1,8	3,73	,30	0,0	3,1
28	2,92	,13	11,4	2,3	2,63	,14	13,9	1,6	4,03	,23	- 3,1	3,2
Septemb. 7	3,05	,10	13,7	2,2	2,77	,10	15,5	1,4	4,26	,17	6,3	3,1
17	3,15	,05	15,9	2,0	2,87	,07	16,9	1,2	4,43	,10	9,4	3,2
27	3,20	,02	17,9	1,8	2,94	,02	18,1	1,0	4,53	,05	12,6	3,1
October 7	3,22	,01	19,7	1,5	2,96	,01	19,1	0,8	4,58	,01	15,7	2,9
17	3,21	,05	21,2	1,3	2,95	,04	19,9	0,5	4,57	,06	18,6	2,7
27	3,16	,08	22,5	1,0	2,91	,06	20,4	0,3	4,51	,13	21,3	2,5
Novemb. 6	3,08	,10	23,5	0,7	2,85	,07	20,7	0,1	4,38	,17	23,8	2,1
16	2,98	,11	24,2	0,3	2,78	,11	20,8	0,1	4,21	,21	25,9	1,7
26	2,87	,14	24,5	0,1	2,67	,11	20,7	0,3	4,00	,24	27,6	1,3
Decemb. 6	2,73	,15	24,6	0,2	2,56	,13	20,4	0,5	3,76	,26	28,9	0,8
16	2,58	,15	24,4	0,6	2,43	,13	19,9	0,7	3,50	,28	29,7	0,2
26	2,43	,08	23,8	0,5	2,30	,13	19,2	0,4	3,22	,16	29,9	0,2
31	2,35	,08	23,3	0,5	2,25	,05	18,8	0,4	3,06	,16	29,7	0,2
Mean Place, Jan. 1, 1831.	H. M. S. 23.59.40,12	61. 50. 33,6		H. M. S. 0. 4. 32,63	75. 45. 21,8		H. M. S. 0. 30. 57,87	34. 23				

TRUE PLACES OF THE PRINCIPAL FIXED STARS.

3. POLARIS.

		Corrections for						Corrections for			
1831.		A. R.		N. P. D.		1831.		A. R.		N. P. D.	
		in Time.						in Time.			
		s.	Diff.	"	Diff.			s.	Diff.	"	Diff.
January... 0 N.	+23, 48	3,84	-15, 0	0,3	July.... 4 N.	+19, 68	3,88	+16, 2	0,4		
5	19, 64	3,86	15, 3	0,1	9	23, 56	3,81	15, 8	0,5		
10	15, 78	3,82	15, 4	0,0	14	27, 37	3,74	15, 3	0,6		
15	11, 96	3,82	15, 4	0,1	19	31, 11	3,71	14, 7	0,8		
20	8, 14	3,77	15, 3	0,3	24	34, 82	3,58	13, 9	0,9		
25	4, 37	3,70	15, 0	0,5	29	38, 40		13, 0			
30	+ 0, 67		14, 5	0,6			3,45		0,9		
		3,60									
February 4	- 2, 93	3,42	13, 9	0,8	August.. 3	41, 85	3,33	12, 1	1,1		
9	6, 35	3,22	13, 1	1,0	8	45, 18	3,15	11, 0	1,3		
14	9, 57	3,02	12, 1	1,0	13	48, 33	2,97	9, 7	1,4		
19	12, 59	2,76	11, 1	1,1	18	51, 30	2,76	8, 3	1,4		
24	15, 35		10, 0		23	54, 06	2,53	6, 9	1,4		
		2,50		1,2	28	56, 59		5, 4	1,5		
							2,33		1,5		
March... 1	17, 85	2,24	8, 8	1,3	Septemb. 2	58, 92	2,07	3, 9	1,7		
6	20, 09	1,88	7, 5	1,4	7	60, 99	1,81	2, 2	1,7		
11	21, 97	1,55	6, 1	1,5	12	62, 80	1,58	+ 0, 5	1,8		
16	23, 52	1,23	4, 6	1,5	17	64, 38	1,32	- 1, 3	1,8		
21	24, 75	0,86	3, 1	1,5	22	65, 70	1,02	3, 1	1,9		
26	25, 61	0,50	- 1, 6	1,6	27	66, 72		5, 0			
31	26, 11	0,10	0, 0	1,6			0,71		1,9		
April.... 5	26, 21	0,23	+ 1, 6	1,6	October 2	67, 43	0,41	6, 9	1,9		
10	25, 98	0,57	3, 2	1,5	7	67, 84	0,12	8, 8	1,9		
15	25, 41	0,93	4, 7	1,4	12	67, 96	0,16	10, 7	1,8		
20	24, 48	1,27	6, 1	1,4	17	67, 80	0,46	12, 5	1,9		
25	23, 21	1,62	7, 5	1,4	22	67, 34	0,74	14, 4	1,9		
30	21, 59		8, 9	1,2	27	66, 60		16, 3	1,9		
		1,91					1,06		1,8		
May.... 5	19, 68	2,21	10, 1	1,2	Novemb. 1	65, 54	1,36	18, 1	1,8		
10	17, 47	2,50	11, 3	1,0	6	64, 18	1,66	19, 9	1,7		
15	14, 97	2,75	12, 3	1,0	11	62, 52	1,94	21, 6	1,6		
20	12, 22	2,96	13, 3	0,9	16	60, 58	2,19	23, 2	1,5		
25	9, 26	3,18	14, 2	0,7	21	58, 39	2,44	24, 7	1,5		
30	6, 08		14, 9	0,6	26	55, 95		26, 2	1,5		
		3,37					2,70		1,4		
June.... 4	- 2, 71	3,51	15, 5	0,5	Decemb.. 1	53, 25	2,92	27, 6	1,2		
9	+ 0, 80	3,67	16, 0	0,3	6	50, 33	3,14	28, 8	1,1		
14	4, 47	3,72	16, 3	0,2	11	47, 19	3,33	29, 9	1,0		
19	8, 19	3,79	16, 5	0,0	16	43, 86	3,49	30, 9	0,8		
24	11, 98	3,88	16, 5	0,1	21	40, 37	3,62	31, 7	0,7		
29	15, 86	3,82	16, 4	0,2	26	36, 75	3,72	32, 4	0,4		
					31	33, 03		32, 8			
					Mean Place, }	H. M. S.	° ' "				
					Jan. 1, 1831. }	0. 59. 47, 61	1. 35. 31, 8				

TRUE PLACES OF THE PRINCIPAL FIXED STARS.

	4. α Arietis.				5. α Ceti.				6. α Persei.			
1831.	Corrections for				Corrections for				Corrections for			
	A. R.		N. P. D.		A. R.		N. P. D.		A. R.		N. P. D.	
	in Time.				in Time.				in Time.			
	s.	Diff.	"	Diff.	s.	Diff.	"	Diff.	s.	Diff.	"	Diff.
January 0 N.	+0,22	,14	+ 1,0	0,4	+0,32	,11	+ 8,7	0,7	+1,06	,14	- 2,3	0,9
10	+0,08	,16	1,4	0,5	0,21	,13	9,4	0,7	0,92	,19	3,2	0,6
20	-0,08	,16	1,9	0,7	+0,08	,13	10,1	0,6	0,73	,24	3,8	0,3
30	0,24	,16	2,6	0,7	-0,05	,13	10,7	0,6	0,49	,24	4,1	0,3
		,16		0,8		,15		0,5		,24		0,2
February 9	0,40	,15	3,4	0,9	0,20	,16	11,2	0,5	+0,25	,26	3,9	0,5
19	0,55	,15	4,3	0,9	0,36	,16	11,7	0,5	-0,01	,26	3,4	0,5
		,14		1,0		,15		0,2		,26		0,9
March... 1	0,69	,12	5,3	0,9	0,51	,14	11,9	0,2	0,27	,24	2,5	1,2
11	0,81	,08	6,2	0,9	0,65	,14	12,1	0,2	0,51	,24	- 1,3	1,2
21	0,89	,08	7,1	0,9	0,77	,12	12,0	0,1	0,72	,21	+ 0,1	1,4
31	0,93	,04	7,9	0,8	0,85	,08	11,8	0,2	0,89	,17	1,8	1,7
		,00		0,7		,05		0,4		,13		1,7
April... 10	0,93	,04	8,6	0,4	0,90	,02	11,4	0,6	1,02	,06	3,5	1,7
20	0,89	,09	9,0	0,3	0,92	,03	10,8	0,9	1,08	,00	5,2	1,8
30	0,80	,14	9,3	0,0	0,89	,07	9,9	1,0	1,08	,00	7,0	1,8
		,14		0,0		,07		1,0		,08		1,6
May.... 10	0,66	,18	9,3	0,3	0,82	,11	8,9	1,2	1,00	,12	8,6	1,4
20	0,48	,23	9,0	0,6	0,71	,17	7,7	1,5	0,88	,20	10,0	1,2
30	-0,25	,26	8,4	0,6	0,54	,20	6,2	1,5	0,68	,20	11,2	1,2
		,26		0,8		,20		1,5		,25		0,9
June.... 9	+0,01	,28	7,6	1,1	0,34	,23	4,7	1,7	0,43	,31	12,1	0,7
19	0,29	,30	6,5	1,3	-0,11	,25	3,0	1,7	-0,12	,35	12,8	0,3
29	0,59	,31	5,2	1,5	+0,14	,28	1,3	1,8	+0,23	,35	13,1	0,3
		,31		1,5		,28		1,8		,40		0,0
July.... 9	0,90	,33	3,7	1,6	0,42	,28	- 0,5	1,7	0,63	,41	13,1	0,4
19	1,23	,32	2,1	1,7	0,70	,31	2,2	1,7	1,04	,41	12,7	0,6
29	1,55	,32	+ 0,4	1,7	1,01	,31	3,9	1,7	1,48	,44	12,1	0,6
		,31		1,8		,29		1,6		,44		0,9
August... 8	1,86	,29	- 1,4	1,8	1,30	,29	5,5	1,4	1,92	,43	11,2	1,3
18	2,15	,27	3,2	1,8	1,59	,27	6,9	1,1	2,35	,41	9,9	1,4
28	2,42	,25	5,0	1,7	1,86	,25	8,0	1,0	2,76	,40	8,5	1,4
		,25		1,7		,25		1,0		,40		1,8
September. 7	2,67	,21	6,7	1,6	2,12	,24	9,0	0,7	3,16	,37	6,7	1,8
17	2,88	,19	8,3	1,5	2,36	,21	9,7	0,5	3,53	,32	4,9	2,0
27	3,07	,15	9,8	1,4	2,57	,20	10,2	0,2	3,85	,30	2,9	2,0
		,15		1,4		,20		0,2		,30		2,1
October 7	3,22	,11	11,2	1,2	2,77	,15	10,4	0,0	4,15	,25	+ 0,8	2,2
17	3,33	,08	12,4	1,0	2,92	,13	10,4	0,2	4,40	,21	- 1,4	2,2
27	3,41	,06	13,4	0,8	3,05	,10	10,2	0,4	4,61	,21	3,6	2,2
		,06		0,8		,10		0,4		,17		2,2
November. 6	3,47	,02	14,2	0,7	3,15	,08	9,8	0,6	4,78	,12	5,8	2,2
16	3,49	,01	14,9	0,5	3,23	,03	9,2	0,6	4,90	,07	8,0	2,1
26	3,48	,04	15,4	0,3	3,26	,00	8,6	0,7	4,97	,07	10,1	2,2
		,04		0,3		,00		0,7		,01		1,8
December. 6	3,44	,07	15,7	0,1	3,26	,02	7,9	0,8	4,98	,04	11,9	1,7
16	3,37	,10	15,8	0,0	3,24	,06	7,1	0,8	4,94	,04	13,6	1,7
26	3,27	,05	15,8	0,1	3,18	,06	6,3	0,8	4,85	,09	14,9	1,3
31	3,22		15,7	0,1	3,14	,04	6,0	0,3	4,78	,07	15,6	0,7
Mean Place, Jan. 1, 1831.	H. M. S. 1. 57. 39, 86	" " " 67. 20. 25, 32	H. M. S. 2. 53. 27, 17	" " " 86. 34. 41, 03	H. M. S. 3. 12. 17, 91	" " " 40. 44. 51, 7						

TRUE PLACES OF THE PRINCIPAL FIXED STARS.

1831.	7. Aldebaran.		8. Capella.		9. Rigel	
	Corrections for		Corrections for		Corrections for	
	A. R. <i>in Time.</i>	N. P. D.	A. R. <i>in Time.</i>	N. P. D.	A. R. <i>in Time.</i>	N. P. D.
	s. Diff.	" Diff.	s. Diff.	" Diff.	s. Diff.	" Diff.
January... 0 N.	+ 0,75,06	+ 7,7,0,3	+ 1,26,03	+ 4,8,1,4	+ 0,81,03	+ 11,8,1,6
10	0,69,08	8,0,0,2	1,23,10	3,4,1,2	0,78,07	13,4,1,3
20	0,61,11	8,2,0,3	1,13,14	2,2,1,0	0,71,09	14,7,1,1
30	0,50,15	8,5,0,3	0,99,19	1,2,0,8	0,62,14	15,8,1,0
February 9	0,35,16	8,8,0,2	0,80,21	+ 0,4,0,5	0,48,16	16,8,0,6
19	0,19,18	9,0,0,3	0,59,24	- 0,1,0,2	0,32,17	17,4,0,5
March... 1	+ 0,01,17	9,3,0,3	0,35,27	0,3,0,1	+ 0,15,18	17,9,0,1
11	- 0,16,17	9,6,0,2	+ 0,08,24	- 0,2,0,3	- 0,03,18	18,0,0,1
21	0,33,15	9,8,0,2	- 0,16,25	+ 0,1,0,6	0,21,16	17,9,0,4
31	0,48,12	10,0,0,1	0,41,20	0,7,0,9	0,37,16	17,5,0,6
April... 10	0,60,09	10,1,0,1	0,61,16	1,6,1,1	0,53,13	16,9,0,9
20	0,69,06	10,2,0,0	0,77,12	2,7,1,2	0,66,10	16,0,1,1
30	0,75,01	10,2,0,2	0,89,07	3,9,1,3	0,76,05	14,9,1,4
May... 10	0,76,04	10,0,0,3	0,96,00	5,2,1,3	0,81,01	13,5,1,5
20	0,72,08	9,7,0,5	0,96,05	6,5,1,3	0,82,03	12,0,1,7
30	0,64,13	9,2,0,6	0,91,11	7,8,1,2	0,79,07	10,3,1,9
June... 9	0,51,17	8,6,0,7	0,80,18	9,0,1,1	0,72,11	8,4,1,9
19	0,34,20	7,9,0,8	0,62,23	10,1,1,0	0,61,15	6,5,2,0
29	- 0,14,23	7,1,1,0	0,39,27	11,1,0,8	0,46,18	4,5,2,0
July... 9	+ 0,09,26	6,1,1,0	- 0,12,31	11,9,0,6	0,28,22	2,5,1,9
19	0,35,29	5,1,1,0	+ 0,19,35	12,5,0,5	- 0,06,24	+ 0,6,1,7
29	0,64,29	4,1,1,0	0,54,37	13,0,0,2	+ 0,18,25	- 1,1,1,6
August... 8	0,93,31	3,1,1,0	0,91,39	13,2,0,0	0,43,27	2,7,1,4
18	1,24,29	2,1,0,9	1,30,40	13,2,0,2	0,70,29	4,1,1,1
28	1,53,30	1,2,0,8	1,70,41	13,0,0,3	0,99,28	5,2,0,8
September 7	1,83,29	+ 0,4,0,8	2,11,41	12,7,0,6	1,27,28	6,0,0,5
17	2,12,29	- 0,4,0,6	2,52,40	12,1,0,7	1,55,29	6,5,0,6
27	2,41,27	1,0,0,4	2,92,39	11,4,0,9	1,84,26	6,5,0,3
October 7	2,68,25	1,4,0,3	3,31,37	10,5,1,0	2,10,25	6,2,0,6
17	2,93,22	1,7,0,2	3,68,36	9,5,1,2	2,35,25	5,6,1,6
27	3,15,21	1,9,0,0	4,04,31	8,3,1,3	2,60,21	4,6,1,1
November 6	3,36,17	1,9,0,0	4,35,27	7,0,1,4	2,81,19	3,4,2,0
16	3,53,13	1,9,0,1	4,62,23	5,6,1,5	3,00,16	2,0,0,4
26	3,66,11	1,8,0,1	4,85,19	4,1,1,5	3,16,12	- 0,4,1,3
December 6	3,77,06	1,7,0,2	5,04,13	2,6,1,5	3,28,09	+ 1,3,3,1
16	3,83,02	1,5,0,2	5,17,06	+ 1,1,1,5	3,37,04	3,1,4,7
26	3,85,00	1,3,0,1	5,23,01	- 0,4,1,1	3,41,01	4,7,5,5
31	3,85,00	1,2,0,1	5,24,01	1,1,0,7	3,42,01	5,5,5,5
Mean Place, Jan. 1, 1831.	H. M. S. 4. 26. 13, 92	" / " 73. 50. 14, 8	H. M. S. 5. 4. 13, 01	" / " 44. 11. 0, 6	H. M. S. 5. 6. 25, 15	" / " 98. 24.

TRUE PLACES OF THE PRINCIPAL FIXED STARS.

831.	10. β Tauri.				11. γ Orionis.				12. δ Orionis.			
	Corrections for				Corrections for				Corrections for			
	A. R. <i>in Time.</i>		N. P. D.		A. R. <i>in Time.</i>		N. P. D.		A. R. <i>in Time.</i>		N. P. D.	
	s.	Diff.	"	Diff.	s.	Diff.	"	Diff.	s.	Diff.	"	Diff.
ary 0 N.	+0,94	,01	+ 7,3	0,5	+0,77	,01	+10,0	0,8	+0,79	,01	+10,7	1,2
10	0,93	,05	6,8	0,3	0,78	,03	10,8	0,7	0,80	,04	11,9	1,1
20	0,88	,10	6,5	0,4	0,75	,09	11,5	0,6	0,76	,07	13,0	0,9
30	0,78	,13	6,1	0,2	0,66	,12	12,1	0,5	0,69	,12	13,9	0,7
ary 9	0,65	,16	5,9	0,2	0,54	,15	12,6	0,4	0,57	,15	14,6	0,6
19	0,49	,18	5,7	0,1	0,39	,16	13,0	0,3	0,42	,17	15,2	0,3
h., 1	0,31	,20	5,6	0,1	0,23	,18	13,3	0,1	0,25	,18	15,5	0,2
11	+0,11	,19	5,7	0,1	+0,05	,18	13,4	0,1	+0,07	,18	15,7	0,1
21	-0,08	,19	5,8	0,1	-0,13	,17	13,5	0,2	-0,11	,17	15,8	0,2
31	0,27	,16	6,1	0,4	0,30	,15	13,3	0,1	0,28	,15	15,6	0,4
... 10	0,43	,13	6,5	0,4	0,45	,13	13,2	0,4	0,43	,13	15,2	0,6
20	0,56	,10	6,9	0,5	0,58	,09	12,8	0,5	0,56	,10	14,6	0,8
30	0,66	,06	7,4	0,4	0,67	,05	12,3	0,7	0,66	,06	13,8	0,9
.... 10	0,72	,01	7,8	0,4	0,72	,02	11,6	0,7	0,72	,02	12,9	1,1
20	0,73	,04	8,2	0,3	0,74	,03	10,9	1,0	0,74	,02	11,8	1,3
30	0,69	,09	8,5	0,3	0,71	,07	9,9	1,0	0,72	,06	10,5	1,3
.... 9	0,60	,14	8,8	0,1	0,64	,12	8,9	1,1	0,66	,10	9,2	1,5
19	0,46	,18	8,9	0,1	0,52	,15	7,8	1,2	0,56	,14	7,7	1,6
29	0,28	,21	9,0	0,0	0,37	,19	6,6	1,2	0,42	,18	6,1	1,5
.... 9	-0,07	,25	9,0	0,2	-0,18	,22	5,4	1,3	0,24	,21	4,6	1,5
19	+0,18	,27	8,8	0,2	+0,04	,24	4,1	1,2	-0,03	,23	3,1	1,5
29	0,45	,30	8,6	0,3	0,28	,26	2,9	1,1	+0,20	,25	1,6	1,3
ust.. 8	0,75	,31	8,3	0,4	0,54	,27	1,8	1,0	0,45	,26	+ 0,3	1,2
18	1,06	,32	7,9	0,4	0,81	,28	+ 0,8	0,8	0,71	,27	- 0,9	1,0
28	1,38	,33	7,5	0,4	1,09	,29	0,0	0,7	0,98	,29	1,9	0,7
temb. 7	1,71	,32	7,1	0,5	1,38	,29	- 0,7	0,4	1,27	,29	2,6	0,4
17	2,03	,33	6,6	0,4	1,67	,28	1,1	0,3	1,56	,28	3,0	0,2
27	2,36	,32	6,2	0,5	1,95	,27	1,4	0,0	1,84	,27	3,2	0,2
ober 7	2,68	,30	5,7	0,4	2,22	,26	1,4	0,3	2,11	,26	3,0	0,4
17	2,98	,29	5,3	0,4	2,48	,25	1,1	0,4	2,37	,24	2,6	0,7
27	3,27	,26	4,9	0,5	2,73	,24	0,7	0,6	2,61	,24	1,9	0,9
remb. 6	3,53	,24	4,4	0,4	2,97	,20	- 0,1	0,8	2,85	,20	- 1,0	1,1
16	3,77	,20	4,0	0,4	3,17	,17	+ 0,7	0,8	3,05	,19	+ 0,1	1,3
26	3,97	,16	3,6	0,5	3,34	,14	1,5	0,9	3,24	,14	1,4	1,3
emb. 6	4,13	,12	3,1	0,4	3,48	,11	2,4	0,9	3,38	,11	2,7	1,3
16	4,25	,08	2,7	0,5	3,59	,06	3,3	0,9	3,49	,07	4,0	1,3
26	4,33	,02	2,2	0,2	3,65	,01	4,2	0,4	3,56	,02	5,3	0,6
31	4,35		2,0		3,66		4,6		3,58		5,9	
n Place, 1, 1831.	H. M. S. 5.15.36,96	" 61.32.36,4	H. M. S. 5.16.4,29	" 83.48.36,9	H. M. S. 5.23.22,65	" 90.25.51,6						

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1831.		19. Procyon.				20. Pollux.				21. a Hydræ.			
		Corrections for				Corrections for				Corrections for			
		A. R.		N. P. D.		A. R.		N. P. D.		A. R.		N. P. D.	
		in Time.				in Time.				in Time.			
		s.	Diff.	s.	Diff.	s.	Diff.	s.	Diff.	s.	Diff.	s.	Diff.
January	0 N.	+0,82	,11	+8,9	1,2	+0,80	,14	+10,6	0,2	+0,65	,21	+3,0	2,2
	10	0,93	,07	10,1	1,1	0,94	,09	10,4	0,3	0,86	,17	5,2	2,0
	20	1,00	,07	11,2	0,9	1,03	,09	10,1	0,5	1,03	,13	7,2	1,9
	30	1,02	,02	12,1		1,07	,04	9,6		1,16		9,1	
			,01		0,7		,02		0,6		,08		1,7
February	9	1,01	,06	12,8	0,5	1,05	,06	9,0	0,7	1,24	,03	10,8	1,4
	19	0,95		13,3		0,99		8,3		1,27		12,2	
			,11		0,4		,11		0,7		,02		1,3
March..	1	0,84	,13	13,7	0,2	0,88	,14	7,6	0,7	1,25	,06	13,5	1,0
	11	0,71	,13	13,9	0,0	0,74	,14	6,9	0,7	1,19	,09	14,5	0,7
	21	0,56	,15	13,9	0,0	0,57	,17	6,3	0,6	1,10	,10	15,2	0,7
	31	0,39	,17	13,9	0,0	0,39	,18	5,8	0,5	1,00		15,7	0,5
			,17		0,2		,19		0,4		,13		0,2
April...	10	0,22	,16	13,7	0,4	0,20	,18	5,4	0,3	0,87	,15	15,9	0,0
	20	+0,06	,15	13,3	0,4	+0,02	,17	5,1	0,2	0,72	,15	15,9	0,3
	30	-0,09		12,9		-0,15		4,9		0,57		15,6	
			,12		0,5		,15		0,0		,14		0,4
May....	10	0,21	,11	12,4	0,6	0,30	,12	4,9	0,1	0,43	,14	15,2	0,6
	20	0,32	,07	11,8	0,7	0,42	,08	5,0	0,1	0,29	,12	14,6	0,8
	30	0,39		11,1		0,50		5,1		0,17		13,8	
			,05		0,8		,05		0,2		,10		0,9
June....	9	0,44	,00	10,3	0,8	0,55	,01	5,3	0,4	+0,07	,08	12,9	1,1
	19	0,44	,02	9,5	0,8	0,56	,04	5,7	0,4	-0,01	,06	11,8	1,1
	29	0,42		8,7		0,52		6,1		0,07		10,7	
			,06		0,9		,07		0,4		,04		1,3
July....	9	0,36	,11	7,8	0,8	0,45	,11	6,5	0,5	0,11	,01	9,4	1,3
	19	0,25	,13	7,0	0,8	0,34	,15	7,0	0,6	0,12	,02	8,1	1,2
	29	-0,12		6,2		0,19		7,6		0,10		6,9	
			,16		0,7		,18		0,5		,05		1,2
August..	8	+0,04	,19	5,5	0,5	-0,01	,21	8,1	0,6	-0,05	,08	5,7	1,1
	18	0,23	,21	5,0	0,4	+0,20	,24	8,7	0,7	+0,03	,11	4,6	0,9
	28	0,44		4,6		0,44		9,4		0,14		3,7	
			,24		0,3		,26		0,6		,14		0,7
Septemb.	7	0,68	,25	4,3	0,0	0,70	,30	10,0	0,7	0,28	,17	3,0	0,5
	17	0,93	,27	4,3	0,2	1,00	,30	10,7	0,8	0,45	,20	2,5	0,2
	27	1,20		4,5		1,30		11,5		0,65		2,3	
			,28		0,5		,32		0,7		,24		0,1
October	7	1,48	,29	5,0	0,6	1,62	,33	12,2	0,8	0,89	,26	2,4	0,5
	17	1,77	,31	5,6	0,9	1,95	,33	13,0	0,7	1,15	,27	2,9	0,8
	27	2,08		6,5		2,29		13,7		1,42		3,7	
			,29		1,1		,34		0,7		,29		1,2
Novemb.	6	2,37	,28	7,6	1,2	2,63	,36	14,4	0,6	1,71	,30	4,9	1,5
	16	2,65	,28	8,8	1,4	2,96	,31	15,0	0,5	2,01	,32	6,4	1,7
	26	2,93		10,2		3,27		15,5		2,33		8,1	
			,25		1,4		,29		0,4		,30		2,0
Decemb.	6	3,18	,23	11,6	1,4	3,56	,27	15,9	0,3	2,63	,29	10,1	2,1
	16	3,41	,19	13,0	1,3	3,83	,22	16,2	0,0	2,92	,26	12,2	2,2
	26	3,60	,08	14,3	0,6	4,05	,10	16,2	0,1	3,18	,13	14,4	1,0
	31	3,68		14,9		4,15		16,1		3,31		15,4	
Mean Place, } Jan. 1, 1831. }		H. M. S. 7.30.27,20		G. I. II 84.20.52,9		H. M. S. 7.34.57,92		G. I. II 61.34.21,2		H. M. S. 9.19.17,01		G. I. II 97.55.46,1	

TRUE PLACES OF THE PRINCIPAL FIXED STARS.

1831.	16. β Aurigæ.				17. Sirius.				18. Castor.			
	Corrections for				Corrections for				Corrections for			
	A. R. in Time.		N. P. D.		A. R. in Time.		N. P. D.		A. R. in Time.		N. P. D.	
	s.	Diff.	s.	Diff.	s.	Diff.	s.	Diff.	s.	Diff.	s.	Diff.
January 0 N.	+1, 19	,04	+ 7, 1		+1, 03	,05	+ 9, 5		+0, 85	,15	+10, 7	
10	1, 23	,03	5, 7	1, 4	1, 08	,00	11, 8	2, 3	1, 00	,06	10, 2	0, 5
20	1, 20	,09	4, 4	1, 3	1, 08	,04	13, 9	1, 9	1, 06	,03	9, 6	0, 8
30	1, 11		3, 1	1, 3	1, 04		15, 8		1, 09		8, 8	
		,14		1, 0		,08		1, 7		,02		0, 8
February 9	0, 97	,19	2, 1	0, 9	0, 96	,12	17, 5	1, 3	1, 07	,08	8, 0	0, 8
19	0, 78		1, 2		0, 84		18, 8		0, 99		7, 2	
		,22		0, 6		,16		1, 1		,12		0, 8
March .. 1	0, 56		0, 6		0, 68	,18	19, 9	0, 6	0, 87	,16	6, 4	0, 7
11	0, 31	,25	0, 3	0, 3	0, 50	,19	20, 5	0, 4	0, 71	,18	5, 7	0, 7
21	+0, 05	,26	0, 3	0, 0	0, 31	,19	20, 9	0, 0	0, 53	,19	5, 0	0, 5
31	-0, 20	,25	0, 5	0, 2	+0, 12	,19	20, 9	0, 0	0, 34	,20	4, 5	0, 4
		,23		0, 5		,19		0, 2				
April.... 10	0, 43	,20	1, 0	0, 7	-0, 07	,18	20, 7	0, 6	+0, 14	,19	4, 1	0, 2
20	0, 63	,16	1, 7	0, 9	0, 25	,15	20, 1	1, 0	-0, 05	,17	3, 9	0, 1
30	0, 79		2, 6		0, 40		19, 1		0, 22		3, 8	
		,11		1, 1		,13		1, 2		,15		0, 2
May.... 10	0, 90	,06	3, 7	1, 1	0, 53	,08	17, 9	1, 4	0, 37	,11	4, 0	0, 2
20	0, 96	,01	4, 8	1, 2	0, 61	,06	16, 5	1, 7	0, 48	,08	4, 2	0, 4
30	0, 95		6, 0		0, 67		14, 8		0, 56		4, 6	
		,06		1, 2		,03		1, 8		,04		0, 4
June.... 9	0, 89	,12	7, 2	1, 2	0, 70	,02	13, 0	2, 0	0, 60	,00	5, 0	0, 6
19	0, 77	,17	8, 4	1, 1	0, 68	,06	11, 0	2, 1	0, 60	,04	5, 6	0, 6
29	0, 60		9, 5		0, 62		8, 9		0, 56		6, 2	
		,22		1, 1		,09		2, 1		,10		0, 6
July.... 9	0, 38	,27	10, 6	0, 9	0, 53	,14	6, 8	2, 1	0, 46	,13	6, 8	0, 7
19	-0, 11	,30	11, 5	0, 7	0, 39	,16	4, 7	1, 9	0, 33	,17	7, 5	0, 7
29	+0, 19		12, 2		0, 23		2, 8		-0, 16		8, 2	
		,34		0, 6		,19		1, 9		,20		0, 7
August.. 8	0, 53	,37	12, 8	0, 4	-0, 04	,22	+ 0, 9	1, 6	+0, 04	,23	8, 9	0, 7
18	0, 90	,38	13, 2	0, 4	+0, 18	,24	- 0, 7	1, 4	0, 27	,26	9, 6	0, 7
28	1, 28		13, 6		0, 42		2, 1		0, 53		10, 3	
		,39		0, 1		,27		1, 0		,29		0, 7
Septemb. 7	1, 67	,40	13, 7	0, 0	0, 69	,27	3, 1	0, 6	0, 82	,31	11, 0	0, 8
17	2, 07	,40	13, 7	0, 2	0, 96	,28	3, 7	0, 1	1, 13	,32	11, 8	0, 7
27	2, 47		13, 5		1, 24		3, 8		1, 45		12, 5	
		,40		0, 4		,28		0, 2		,34		0, 7
October 7	2, 87	,39	13, 1	0, 5	1, 52	,30	3, 6	0, 7	1, 79	,34	13, 2	0, 7
17	3, 26	,37	12, 6	0, 7	1, 82	,28	2, 9	1, 1	2, 13	,35	13, 9	0, 6
27	3, 63		11, 9		2, 10		1, 8		2, 48		14, 5	
		,35		0, 9		,27		1, 5		,36		0, 5
Novemb. 6	3, 98	,32	11, 0	1, 0	2, 37	,26	- 0, 3	1, 8	2, 84	,33	15, 0	0, 4
16	4, 30	,28	10, 0	1, 1	2, 63	,23	+ 1, 5	2, 0	3, 17	,32	15, 4	0, 2
26	4, 58		8, 9		2, 86		3, 5		3, 49		15, 6	
		,23		1, 3		,21		2, 3		,29		0, 2
Decemb. 6	4, 81	,19	7, 6	1, 3	3, 07	,16	5, 8	2, 3	3, 78	,26	15, 8	0, 1
16	5, 00	,13	6, 3	1, 4	3, 23	,12	8, 1	2, 4	4, 04	,22	15, 7	0, 2
26	5, 13	,03	4, 9	0, 7	3, 35	,05	10, 5	1, 2	4, 26	,10	15, 5	0, 2
31	5, 16		4, 2		3, 40		11, 7		4, 36		15, 3	
Mean Place, Jan. 1, 1831.	H. M. S. 5.47. 8, 03		45. 4. 46, 0		H. M. S. 6.37.41, 89		106.29.24, 5		H. M. S. 7.23.48, 32		57.44.56, 1	

TRUE PLACES OF THE PRINCIPAL FIXED STARS.

1831.	19. Procyon.				20. Pollux.				21. α Hydræ.			
	Corrections for				Corrections for				Corrections for			
	A. R.		N. P. D.		A. R.		N. P. D.		A. R.		N. P. D.	
	in Time.	s. Diff.			in Time.	s. Diff.			in Time.	s. Diff.		
	s.	Diff.	s.	Diff.	s.	Diff.	s.	Diff.	s.	Diff.	s.	Diff.
January 0 N.	+0,82	,11	+ 8,9	1,2	+0,80	,14	+10,6	0,2	+0,65	,21	+ 3,0	2,2
10	0,93	,07	10,1	1,1	0,94	,09	10,4	0,3	0,86	,17	5,2	2,0
20	1,00	,02	11,2	0,9	1,03	,09	10,1	0,5	1,03	,13	7,2	1,9
30	1,02		12,1		1,07	,04	9,6		1,16		9,1	
		,01		0,7		,02		0,6		,08		1,7
February 9	1,01	,06	12,8	0,5	1,05	,06	9,0	0,7	1,24	,03	10,8	1,4
19	0,95		13,3		0,99		8,3		1,27		12,2	
		,11		0,4		,11		0,7		,02		1,3
March.. 1	0,84	,13	13,7	0,2	0,88	,14	7,6	0,7	1,25	,06	13,5	1,0
11	0,71	,15	13,9	0,0	0,74	,17	6,9	0,6	1,19	,09	14,5	0,7
21	0,56	,17	13,9	0,0	0,57	,18	6,3	0,5	1,10	,10	15,2	0,5
31	0,39		13,9		0,39		5,8		1,00		15,7	
		,17		0,2		,19		0,4		,13		0,2
April... 10	0,22	,16	13,7	0,4	0,20	,18	5,4	0,3	0,87	,15	15,9	0,0
20	+0,06	,15	13,3	0,4	+0,02	,17	5,1	0,2	0,72	,15	15,9	0,3
30	-0,09		12,9		-0,15		4,9		0,57		15,6	
		,12		0,5		,15		0,0		,14		0,4
May.... 10	0,21	,11	12,4	0,6	0,30	,12	4,9	0,1	0,43	,14	15,2	0,6
20	0,32	,07	11,8	0,7	0,42	,08	5,0	0,1	0,29	,12	14,6	0,8
30	0,39		11,1		0,50		5,1		0,17		13,8	
		,05		0,8		,05		0,2		,10		0,9
June.... 9	0,44	,00	10,3	0,8	0,55	,01	5,3	0,4	+0,07	,08	12,9	1,1
19	0,44	,02	9,5	0,8	0,56	,04	5,7	0,4	-0,01	,06	11,8	1,1
29	0,42		8,7		0,52		6,1		0,07		10,7	
		,06		0,9		,07		0,4		,04		1,3
July.... 9	0,36	,11	7,8	0,8	0,45	,11	6,5	0,5	0,11	,01	9,4	1,3
19	0,25	,13	7,0	0,8	0,34	,15	7,0	0,6	0,12	,02	8,1	1,2
29	-0,12		6,2		0,19		7,6		0,10		6,9	
		,16		0,7		,18		0,5		,05		1,2
August.. 8	+0,04	,19	5,5	0,5	-0,01	,21	8,1	0,6	-0,05	,08	5,7	1,1
18	0,23	,21	5,0	0,4	+0,20	,24	8,7	0,7	+0,03	,11	4,6	0,9
28	0,44		4,6		0,44		9,4		0,14		3,7	
		,24		0,3		,26		0,6		,14		0,7
Septemb. 7	0,68	,25	4,3	0,0	0,70	,30	10,0	0,7	0,28	,17	3,0	0,5
17	0,93	,27	4,3	0,2	1,00	,30	10,7	0,8	0,45	,20	2,5	0,2
27	1,20		4,5		1,30		11,5		0,65		2,3	
		,28		0,5		,32		0,7		,24		0,1
October 7	1,48	,29	5,0	0,6	1,62	,33	12,2	0,8	0,89	,26	2,4	0,5
17	1,77	,31	5,6	0,9	1,95	,34	13,0	0,7	1,15	,27	2,9	0,8
27	2,08		6,5		2,29		13,7		1,42		3,7	
		,29		1,1		,34		0,7		,29		1,2
Novemb. 6	2,37	,28	7,6	1,2	2,63	,36	14,4	0,6	1,71	,30	4,9	1,5
16	2,65	,28	8,8	1,4	2,96	,31	15,0	0,5	2,01	,32	6,4	1,7
26	2,93		10,2		3,27		15,5		2,33		8,1	
		,25		1,4		,29		0,4		,30		2,0
Decemb. 6	3,18	,23	11,6	1,4	3,56	,27	15,9	0,3	2,63	,29	10,1	2,1
16	3,41	,19	13,0	1,3	3,83	,22	16,2	0,0	2,92	,26	12,2	2,2
26	3,60	,08	14,3	0,6	4,05	,10	16,2	0,1	3,18	,13	14,4	1,0
31	3,68		14,9		4,15		16,1		3,31		15,4	

Mean Place, } H. M. S. 7.30.27,20 84.20.52,9 7.34.57,92 61.34.21,2 9.19.17,01 97.55.46,1
Jan. 1, 1831. }

TRUE PLACES OF THE PRINCIPAL FIXED STARS.

1831.	22. Regulus.				23. α Ursæ Majoris.				24. β Leonis.			
	Corrections for		Corrections for		Corrections for		Corrections for		Corrections for		Corrections for	
	A. R.		A. R.		A. R.		A. R.		A. R.		A. R.	
	in Time.		in Time.		in Time.		in Time.		in Time.		in Time.	
	s.	Diff.	s.	Diff.	s.	Diff.	s.	Diff.	s.	Diff.	s.	Diff.
ary 0 N.	+0,28	,26	+6,7	1,3	-0,37	,54	+16,5	0,3	-0,28	,30	+4,3	1,7
10	0,54	,22	8,0	1,1	+0,17	,47	16,2	1,0	+0,02	,28	6,0	1,3
20	0,76	,17	9,1	0,8	0,64	,39	15,2	1,4	0,30	,27	7,3	1,0
30	0,93		9,9		1,03		13,8		0,57		8,3	
		,13		0,6		,32		1,8		,22		0,8
uary 9	1,06	,07	10,5	0,3	1,35	,21	12,0	2,3	0,79	,17	9,1	0,4
19	1,13		10,8		1,56		9,7		0,96		9,5	
		,03		0,0		,13		2,5		,14		0,0
ch .. 1	1,16	,01	10,8	0,1	1,69	,04	7,2	2,6	1,10	,09	9,5	0,2
11	1,15	,05	10,7	0,4	1,73	,04	4,6	2,7	1,19	,06	9,3	0,5
21	1,10	,07	10,3	0,5	1,69	,12	+1,9	2,6	1,25	,01	8,8	0,7
31	1,03		9,8		1,57		-0,7		1,26		8,1	
		,11		0,5		,18		2,5		,03		0,9
il ... 10	0,92	,12	9,3	0,7	1,39	,24	3,2	2,2	1,23	,05	7,2	1,0
20	0,80	,13	8,6	0,6	1,15	,27	5,4	1,9	1,18	,08	6,2	1,0
30	0,67		8,0		0,88		7,3		1,10		5,2	
		,14		0,7		,31		1,4		,08		1,0
y... 10	0,53	,14	7,3	0,6	0,57	,33	8,7	1,0	1,02	,11	4,2	1,0
20	0,39	,11	6,7	0,7	+0,24	,33	9,7	0,5	0,91	,12	3,2	0,9
30	0,28		6,0		-0,09		10,2		0,79		2,3	
		,11		0,5		,32		0,1		,12		0,8
e.... 9	0,17	,10	5,5	0,5	0,41	,32	10,3	0,5	0,67	,12	1,5	0,7
19	+0,07	,08	5,0	0,4	0,73	,29	9,8	0,9	0,55	,11	0,8	0,5
29	-0,01		4,6		1,02		8,9		0,44		+0,3	
		,05		0,3		,26		1,3		,10		0,4
y.... 9	0,06	,03	4,3	0,2	1,28	,24	7,6	1,8	0,34	,10	-0,1	0,2
19	0,09	,00	4,1	0,1	1,52	,18	5,8	2,1	0,24	,09	0,3	0,0
29	0,09		4,0		1,70		3,7		0,15		0,3	
		,02		0,0		,12		2,4		,07		0,1
gust.. 8	0,07	,05	4,0	0,2	1,82	,08	-1,3	2,7	0,08	,04	-0,2	0,4
18	-0,02	,08	4,2	0,3	1,90	,00	+1,4	2,9	0,04	,02	+0,2	0,6
28	+0,06		4,5		1,90		4,3		0,02		0,8	
		,12		0,5		,07		3,1		,00		0,7
ptemb. 7	0,18	,14	5,0	0,7	1,83	,13	7,4	3,3	0,02	,05	1,5	1,0
17	0,32	,17	5,7	0,9	1,70	,22	10,7	3,2	0,07	,07	2,5	1,2
27	0,49		6,6		1,48		13,9		0,14		3,7	
		,21		1,1		,29		3,2		,11		1,5
tober 7	0,70	,24	7,7	1,3	1,19	,37	17,1	3,2	0,25	,15	5,2	1,6
17	0,94	,27	9,0	1,5	0,82	,42	20,3	2,9	0,40	,20	6,8	1,9
27	1,21		10,5		-0,40		23,2		0,60		8,7	
		,28		1,6		,50		2,8		,23		2,0
vemb. 6	1,49	,32	12,1	1,7	+0,10	,55	26,0	2,4	0,83	,25	10,7	2,2
16	1,81	,31	13,8	1,7	0,65	,58	28,4	2,1	1,08	,30	12,9	2,1
26	2,12		15,5		1,23		30,5		1,38		15,0	
		,32		1,8		,61		1,4		,31		2,2
emb. 6	2,44	,32	17,3	1,7	1,84	,60	31,9	1,1	1,69	,34	17,2	2,1
16	2,76	,30	19,0	1,6	2,44	,59	33,0	0,5	2,03	,32	19,3	1,9
26	3,06	,14	20,6	0,8	3,03	,26	33,5	0,0	2,35	,17	21,2	0,9
31	3,20		21,4		3,29		33,5		2,52		22,1	
n Place, } 1, 1831.	H. M. S. 9.59.21,93	O. / " "		H. M. S. 77.12.33,9	O. / " "		H. M. S. 10.53.13,69	O. / " "		H. M. S. 11.40.26,12	O. / " "	
		74.28.59,0										

TRUE PLACES OF THE PRINCIPAL FIXED STARS.

1831.	25. γ Ursæ Majoris.				26. δ Ursæ Majoris.				27. Spica η .			
	Corrections for				Corrections for				Corrections for			
	A. R.		N. P. D.		A. R.		N. P. D.		A. R.		N. P. D.	
	in Time.		in Time.		in Time.		in Time.		in Time.		in Time.	
	s.	Diff.	s.	Diff.	s.	Diff.	s.	Diff.	s.	Diff.	s.	Diff.
January 0 N.	-0,77		+14,5	0,5	-1,04	,52	+14,3	0,8	-0,58		-8,0	2,0
10	-0,30	,47	15,0	0,1	0,52		15,1	0,1	-0,27	,31	6,0	2,0
20	+0,13	,43	14,9	0,1	-0,05	,47	15,2	0,1	+0,05	,32	4,0	2,0
30	0,51	,38	14,3	0,6	+0,38	,43	14,7	0,5	0,35	,30	2,1	1,9
		,32		1,1		,37		1,0		,28		1,8
February 9	0,83		13,2	1,6	0,75		13,7	1,6	0,63		-0,3	1,6
19	1,10	,27	11,6		1,06	,31	12,1	1,6	0,87	,24	+1,3	1,6
		,19		2,0		,24		2,1		,22		1,5
March . . 1	1,29		9,6	2,3	1,30		10,0		1,09		2,8	1,3
11	1,42	,13	7,3	2,3	1,47	,17	7,7	2,3	1,27	,18	4,1	1,3
21	1,47	,05	4,9	2,4	1,56	,09	5,2	2,5	1,42	,15	5,1	1,0
31	1,47	,00	+2,3	2,6	1,60	,04	+2,5	2,7	1,53	,11	5,9	0,8
		,07		2,5		,03		2,7		,08		0,5
April . . . 10	1,40		-0,2	2,4	1,57		-0,2	2,6	1,61		6,4	0,4
20	1,30	,10	2,6	2,2	1,47	,10	2,8	2,4	1,66	,05	6,8	0,4
30	1,14	,16	4,8	2,2	1,32	,15	5,2	2,4	1,67	,01	7,0	0,2
		,18		2,0		,19		2,1		,01		0,1
May . . . 10	0,96		6,8	1,5	1,13		7,3		1,66		7,1	0,2
20	0,73	,23	8,3	1,2	0,90	,23	9,1	1,8	1,63	,03	6,9	0,2
30	0,50	,23	9,5	1,2	0,65	,25	10,5	1,4	1,57	,06	6,7	0,2
		,24		0,8		,26		1,0		,08		0,4
June . . . 9	0,26		10,3	0,3	0,39		11,5	0,5	1,49		6,3	0,4
19	+0,01	,25	10,6	0,2	+0,10	,29	12,0	0,0	1,40	,09	5,9	0,5
29	-0,23	,24	10,4		-0,19	,29	12,0		1,30	,10	5,4	
		,24		0,5		,27		0,4		,10		0,6
July . . . 9	0,47		9,9	1,1	0,46		11,6	0,9	1,20		4,8	0,7
19	0,70	,23	8,8	1,4	0,73	,27	10,7	1,4	1,08	,12	4,1	0,6
29	0,89	,19	7,4		0,99	,26	9,3		0,95	,13	3,5	
		,16		1,9		,22		1,8		,12		0,7
August . . 8	1,05		5,5	2,2	1,21		7,5	2,1	0,83		2,8	0,7
18	1,18	,13	3,3	2,4	1,39	,18	5,4	2,5	0,72	,11	2,1	0,6
28	1,26	,08	-0,9		1,52	,13	2,9		0,62	,10	1,5	
		,03		2,8		,08		2,8		,07		0,5
Septemb. 7	1,29		+1,9	2,9	1,60		-0,1	3,1	0,55		1,0	0,5
17	1,28	,01	4,8	3,2	1,64	,04	+3,0	3,2	0,49	,06	0,5	0,2
27	1,19	,09	8,0		1,60	,04	6,2		0,46	,03	0,3	
		,15		3,2		,11		3,4		,01		0,0
October 7	1,04		11,2	3,3	1,49		9,6	3,5	0,47		0,3	0,1
17	0,83	,21	14,5	3,2	1,30	,19	13,1	3,4	0,53	,06	0,4	0,4
27	0,55	,28	17,7		1,04	,26	16,5		0,63	,10	0,8	
		,34		3,1		,32		3,3		,15		0,6
Novemb. 6	-0,21		20,8	3,0	0,72		19,8	3,1	0,78		1,4	1,0
16	+0,18	,39	23,8	2,6	-0,33	,39	22,9	2,9	0,97	,19	2,4	1,2
26	0,61	,43	26,4		+0,10	,43	25,8		1,20	,23	3,6	
		,46		2,3		,48		2,5		,27		1,5
Decemb. 6	1,07		28,7	1,9	0,58		28,3	2,1	1,47		5,1	1,7
16	1,56	,49	30,6	1,3	1,09	,51	30,4	1,6	1,77	,30	6,8	1,9
26	2,05	,49	31,9	0,5	1,61		32,0		2,08		8,7	1,0
31	2,28	,23	32,4		1,86	,25	32,5	0,5	2,24	,16	9,7	
Mean Place, } Jan. 1, 1831. }	H. M. S.				H. M. S.				H. M. S.			
	11.44.54,15		35.21.55,0		12.7.1,29		32.1.39,8		13.16.18,03		100.16.33,2	

TRUE PLACES OF THE PRINCIPAL FIXED STARS.

831.	28. ζ Ursæ Majoris.				29. η Ursæ Majoris.				30. α Draconis.			
	A. R.		N. P. D.		A. R.		N. P. D.		A. R.		N. P. D.	
	in Time.				in Time.				in Time.			
	s.	Diff.	s.	Diff.	s.	Diff.	s.	Diff.	s.	Diff.	s.	Diff.
ary 0 N.	-1,58		+11,4		-1,56		+9,2		-2,44		+10,6	
10	1,10	,48	13,1	,7	1,13	,43	11,1	,9	1,87	,57	12,5	,1,9
20	0,64	,46	14,0	,0,9	0,72	,41	12,5	,1,4	1,29	,58	13,8	,1,3
30	-0,19	,45	14,3	,0,3	-0,30	,42	13,3	,0,8	0,71	,58	14,5	,0,7
		,43		,0,3		,39		,0,2		,56		,0,0
ary 9	+0,24		14,0		+0,09		13,5		-0,15		14,5	
19	0,61	,37	13,2	,0,8	0,44	,35	13,1	,0,4	+0,38	,53	13,9	,0,6
		,32		,1,3		,31		,1,0		,47		,1,3
h... 1	0,93		11,9		0,75		12,1		0,85		12,6	
11	1,20	,27	10,0	,1,9	1,02	,27	10,6	,1,5	1,26	,41	10,8	,1,8
21	1,41	,21	7,7	,2,3	1,24	,22	8,6	,2,0	1,60	,34	8,5	,2,3
31	1,55	,14	5,2	,2,5	1,41	,17	6,4	,2,2	1,87	,27	5,9	,2,6
		,08		,2,8		,11		,2,6		,18		,2,9
... 10	1,63	,03	+2,4	,2,8	1,52	,06	3,8	,2,6	2,05	,09	+3,0	,3,0
20	1,66		-0,4	,2,7	1,58		+1,2	,2,7	2,14		0,0	,3,0
30	1,63	,03	3,1		1,59	,01	-1,5		2,15	,01	-3,0	,3,0
		,09		,2,6		,04		,2,7		,06		,2,9
... 10	1,54		5,7		1,55		4,2		2,09		5,9	
20	1,40	,14	8,1	,2,4	1,47	,08	6,6	,2,4	1,96	,13	8,7	,2,8
30	1,22	,18	10,2	,2,1	1,34	,13	8,8	,2,2	1,74	,22	11,2	,2,5
		,22		,1,7		,16		,2,0		,28		,2,1
... 9	1,00		11,9		1,18		10,8		1,46		13,3	
19	0,76	,24	13,2	,1,3	0,99	,19	12,3	,1,5	1,12	,34	15,1	,1,8
29	0,49	,27	14,1	,0,9	0,78	,21	13,5	,1,2	0,74	,38	16,3	,1,2
		,28		,0,4		,24		,0,7		,40		,0,8
... 9	+0,21		14,5		0,54		14,2		+0,34		17,1	
19	-0,09	,30	14,4	,0,1	0,28	,26	14,5	,0,3	-0,10	,44	17,3	,0,2
29	0,39	,30	13,8	,0,6	+0,03	,25	14,3	,0,2	0,55	,45	17,0	,0,3
		,27		,1,0		,25		,0,7		,45		,0,7
ast... 8	0,66		12,8		-0,22		13,6		1,00		16,3	
18	0,92	,26	11,2	,1,6	0,46	,24	12,5	,1,1	1,43	,43	15,0	,1,3
28	1,15	,23	9,3	,1,9	0,68	,22	11,0	,1,5	1,84	,41	13,2	,1,8
		,21		,2,3		,19		,2,0		,37		,2,2
emb. 7	1,36		7,0		0,87		9,0		2,21		11,0	
17	1,51	,15	4,3	,2,7	1,04	,17	6,6	,2,4	2,51	,30	8,4	,2,6
27	1,60	,09	-1,3	,3,0	1,14	,10	3,9	,2,7	2,76	,25	5,4	,3,0
		,03		,3,3		,06		,3,0		,17		,3,4
ber 7	1,63		+2,0		1,20		-0,9		2,93		-2,0	
17	1,59	,04	5,4	,3,4	1,20	,00	+2,3	,3,2	3,01	,08	+1,5	,3,5
27	1,48	,11	9,0	,3,6	1,13	,07	5,7	,3,4	3,00	,01	5,2	,3,7
		,19		,3,6		,13		,3,6		,11		,3,8
emb. 6	1,29		12,6		1,00		9,3		2,89		9,0	
16	1,03	,26	16,2	,3,6	0,81	,19	12,8	,3,5	2,67	,22	12,8	,3,8
26	0,71	,32	19,6	,3,4	0,55	,26	16,3	,3,5	2,38	,29	16,5	,3,7
		,37		,3,1		,31		,3,2		,37		,3,5
emb. 6	-0,34		22,7		-0,24		19,5		2,01		20,0	
16	+0,09	,43	25,6	,2,9	+0,12	,36	22,6	,3,1	1,55	,46	23,1	,3,1
26	0,54	,45	28,0	,2,4	0,51	,39	25,3	,2,7	1,04	,51	25,9	,2,8
31	0,78	,24	29,0	,1,0	0,71	,20	26,4	,1,1	0,76	,28	27,1	,1,2
h Place, } 1, 1831.	H. M. S. 13.17. 6, 15	34. 11. 23, 0		H. M. S. 13.40.52, 31	39. 50. 25, 2		H. M. S. 13.59.48, 95	24. 48. 51, 6				

TRUE PLACES OF THE PRINCIPAL FIXED STARS.

1831.	31. Arcturus.				32. ϵ Bootis.				33. 2α Libræ.			
	Corrections for				Corrections for				Corrections for			
	A. R.		N. P. D.		A. R.		N. P. D.		A. R.		N. P. D.	
	in Time.				in Time.				in Time.			
	s.	Diff.	"	Diff.	s.	Diff.	"	Diff.	s.	Diff.	"	Diff.
January 0 N.	-1,15	,31	+ 0,3		-1,40	,31	+ 1,2		-1,08	,31	-11,4	1,6
10	0,84	,32	2,6	2,3	1,09	,31	3,6	2,4	0,77	,32	9,8	1,6
20	0,52	,32	4,6	2,0	0,75	,34	5,7	2,1	0,45	,31	8,2	1,6
30	-0,20	,32	6,2	1,6	0,43	,32	7,3	1,6	-0,14	,31	6,6	1,6
		,30		1,2		,32		1,2		,31		1,5
February 9	+0,10	,28	7,4	0,7	-0,11	,30	8,5	0,7	+0,17	,30	5,1	1,6
19	0,38		8,1		+0,19		9,2	0,7	0,47		3,5	
		,26		0,4		,29		0,2		,28		1,4
March .. 1	0,64	,23	8,5	0,1	0,48	,25	9,4	0,3	0,75	,25	2,1	1,2
11	0,87	,19	8,4	0,5	0,73	,22	9,1	0,8	1,00	,23	- 0,9	1,1
21	1,06	,19	7,9	0,8	0,95	,20	8,3	1,2	1,23	,19	+ 0,2	0,9
31	1,22		7,1		1,15		7,1		1,42		1,1	
		,12		1,1		,15		1,5		,17		0,7
April ... 10	1,34	,09	6,0	1,4	1,30	,12	5,6	1,8	1,59	,14	1,8	0,5
20	1,43	,06	4,6	1,5	1,42	,10	3,8	2,0	1,73	,10	2,3	0,4
30	1,49		3,1		1,52		+ 1,8		1,83		2,7	
		,02		1,6		,04		2,0		,07		0,3
May 10	1,51	,01	+ 1,5	1,6	1,56	,02	- 0,2	2,1	1,90	,05	3,0	0,1
20	1,50	,03	- 0,1	1,6	1,58	,01	2,3	2,0	1,95	,01	3,1	0,0
30	1,47		1,7		1,57		4,3		1,96		3,1	
		,06		1,5		,05		1,9		,01		0,1
June 9	1,41	,09	3,2	1,3	1,52	,08	6,2	1,8	1,95	,04	3,0	0,2
19	1,32	,10	4,5	1,1	1,44	,10	8,0	1,5	1,91	,07	2,8	0,2
29	1,22		5,6		1,34		9,5		1,84		2,6	
		,12		0,9		,13		1,2		,09		0,4
July 9	1,10	,14	6,5	0,7	1,21	,14	10,7	1,0	1,75	,11	2,2	0,3
19	0,96	,14	7,2	0,5	1,07	,17	11,7	0,6	1,64	,11	1,9	0,5
29	0,82		7,7		0,90		12,3		1,51		1,4	
		,15		0,1		,16		0,3		,14		0,5
August .. 8	0,67	,16	7,8	0,2	0,74	,18	12,6	0,1	1,37	,15	0,9	0,5
18	0,51	,13	7,6	0,4	0,56	,17	12,5	0,4	1,22	,14	+ 0,4	0,5
28	0,38		7,2		0,39		12,1		1,08		- 0,1	
		,14		0,7		,17		0,9		,13		0,6
Septemb. 7	0,24	,10	6,5	1,1	0,22	,15	11,2	1,2	0,95	,13	0,7	0,4
17	0,14	,08	5,4	1,3	+0,07	,12	10,0	1,4	0,82	,09	1,1	0,5
27	0,06		4,1		-0,05		8,6		0,73		1,6	
		,04		1,7		,08		1,8		,07		0,3
October 7	0,02	,02	2,4	1,9	0,13	,05	6,8	2,2	0,66	,03	1,9	0,2
17	0,00	,03	- 0,5	2,1	0,18	,00	4,6	2,4	0,63	,01	2,1	0,1
27	0,03		+ 1,6		0,18		- 2,2		0,64		2,0	
		,08		2,4		,04		2,6		,07		0,2
Novemb. 6	0,11	,14	4,0	2,7	0,14	,11	+ 0,4	2,8	0,71	,12	1,8	0,5
16	0,25	,17	6,7	2,6	-0,03	,16	3,2	3,0	0,83	,16	1,3	0,8
26	0,42		9,3		+0,13		6,2		0,99		- 0,5	
		,23		2,7		,19		3,0		,20		0,8
Decemb. 6	0,65	,27	12,0	2,8	0,32	,25	9,2	3,0	1,19	,25	+ 0,3	1,1
16	0,92	,28	14,8	2,6	0,57	,29	12,2	2,8	1,44	,28	1,4	1,4
26	1,20		17,4	1,2	0,86		15,0		1,72		2,8	
31	1,35	,15	18,6		1,01	,15	16,3	1,3	1,87	,15	3,5	0,7
Mean Place, } Jan. 1, 1831. }	H. M. S. 14. 7. 57,37		69. 56. 1,5		H. M. S. 14.37.36,35		62. 12.31,9		H. M. S. 14.41.32,64		105.20.0,8	

TRUE PLACES OF THE PRINCIPAL FIXED STARS.

331.	34. β Ursae Minoris.			35. α Coronae Borealis.			36. α Serpentis.		
	Corrections for		N. P. D.	Corrections for		N. P. D.	Corrections for		N. P. D.
	A. R.			A. R.			A. R.		
	in Time.			in Time.			in Time.		
	s.	Diff.	"	s.	Diff.	"	s.	Diff.	"
ary.. 0 N.	-4, 31	,72	+ 8, 2	-1, 59	,27	- 1, 2	-1, 43	,26	- 6, 0
10	3, 59	,85	10, 5	1, 32	,31	+ 1, 6	1, 17	,30	3, 9
20	2, 74	,85	12, 3	1, 01	,32	3, 9	0, 87	,30	1, 9
30	1, 89	,85	13, 5	0, 69	,32	5, 9	0, 58	,29	0, 2
		,88	0, 5		,32	1, 5		,30	1, 5
ary 9	1, 01	,84	14, 0	0, 37	,32	7, 4	-0, 28	,31	+ 1, 3
19	-0, 17	,84	13, 8	-0, 05	,32	8, 4	+0, 03	,31	2, 5
		,81	0, 8		,30	0, 5		,28	0, 9
h... 1	+0, 64	,73	13, 0	+0, 25	,28	8, 9	0, 31	,27	3, 4
11	1, 37	,65	11, 5	0, 53	,28	8, 8	0, 58	,27	3, 9
21	2, 02	,65	9, 6	0, 79	,26	8, 3	0, 83	,25	4, 1
31	2, 56	,54	7, 1	1, 03	,24	7, 3	1, 06	,23	3, 8
		,41	2, 8		,21	1, 4		,20	0, 5
... 10	2, 97	,29	4, 3	1, 24	,16	5, 9	1, 26	,18	3, 3
20	3, 26	,16	+ 1, 3	1, 40	,16	4, 2	1, 44	,18	2, 6
30	3, 42	,16	- 1, 7	1, 54	,14	2, 3	1, 58	,14	1, 6
		,01	3, 1		,10	2, 1		,13	1, 2
... 10	3, 41	,14	4, 8	1, 64	,07	+ 0, 2	1, 71	,08	+ 0, 4
20	3, 27	,26	7, 9	1, 71	,03	- 2, 0	1, 79	,08	- 0, 8
30	3, 01	,26	10, 8	1, 74	,07	4, 2	1, 84	,05	2, 1
		,39	2, 5		,01	2, 2		,02	1, 3
... 9	2, 62	,51	13, 3	1, 73	,04	6, 4	1, 86	,01	3, 4
19	2, 11	,60	15, 5	1, 69	,07	8, 3	1, 85	,04	4, 7
29	1, 51	,60	17, 3	1, 62	,07	10, 1	1, 81	,04	5, 8
		,69	1, 2		,10	1, 6		,06	1, 1
... 9	0, 82	,75	18, 5	1, 52	,12	11, 7	1, 75	,09	6, 9
19	+0, 07	,79	19, 3	1, 40	,12	12, 9	1, 66	,09	7, 9
29	-0, 72	,79	19, 6	1, 24	,16	14, 0	1, 54	,12	8, 7
		,82	0, 2		,16	0, 7		,14	0, 6
ust.. 8	1, 54	,82	19, 4	1, 08	,19	14, 7	1, 40	,15	9, 3
18	2, 36	,80	18, 6	0, 89	,18	15, 0	1, 25	,16	9, 7
28	3, 16	,80	17, 3	0, 71	,18	14, 9	1, 09	,16	9, 9
		,76	1, 8		,19	0, 4		,15	0, 1
mb. 7	3, 92	,69	15, 5	0, 52	,17	14, 5	0, 94	,16	10, 0
17	4, 61	,60	13, 2	0, 35	,17	13, 6	0, 78	,16	9, 8
27	5, 21	,60	10, 6	0, 19	,16	12, 5	0, 64	,14	9, 3
		,49	3, 1		,13	1, 6		,11	0, 7
ber 7	5, 70	,38	7, 5	+0, 06	,10	10, 9	0, 53	,08	8, 6
17	6, 08	,24	4, 2	-0, 04	,10	9, 0	0, 45	,08	7, 6
27	6, 32	,24	- 0, 5	0, 10	,06	6, 8	0, 40	,05	6, 4
		,10	3, 8		,01	2, 5		,00	1, 4
mb. 6	6, 42	,02	+ 3, 3	0, 11	,04	4, 3	0, 40	,05	5, 0
16	6, 40	,18	7, 1	-0, 07	,04	1, 6	0, 45	,05	3, 3
26	6, 22	,18	10, 9	+0, 03	,10	+ 1, 4	0, 55	,10	1, 5
		,32	3, 7		,15	3, 0		,14	2, 0
mb. 6	5, 90	,48	14, 6	0, 18	,19	4, 4	0, 69	,19	+ 0, 5
16	5, 42	,48	18, 1	0, 37	,24	7, 5	0, 88	,19	2, 7
26	4, 81	,61	21, 2	0, 61	,29	10, 3	1, 10	,22	5, 0
31	4, 48	,33	22, 6	0, 74	,13	11, 7	1, 23	,13	6, 1
a Place, 1, 1831.	H. M. S. 14.51.16,93		15. 9. 13,2	H. M. S. 15.27.32,15		62. 42. 40,9	H. M. S. 15.35.57,01		83. 2. 10,7

TRUE PLACES OF THE PRINCIPAL FIXED STARS.

		31. Arcturus.				32. ε Bootis.				33. 2 α Libræ.							
1831.		Corrections for				Corrections for				Corrections for							
		A. R. <i>in Time.</i>		N. P. D.		A. R. <i>in Time.</i>		N. P. D.		A. R. <i>in Time.</i>		N. P. D.					
		s.	Diff.	"	Diff.	s.	Diff.	"	Diff.	s.	Diff.	"	Diff.				
January	0 N.	-1, 15	31	+ 0, 3	2, 3	-1, 40	31	+ 1, 2	2, 4	-1, 08	31	-11, 4	1, 6				
	10	0, 84	32	2, 6	2, 0	1, 09	34	3, 6	2, 1	0, 77	32	9, 8	1, 6				
	20	0, 52	32	4, 6	1, 6	0, 75	34	5, 7	1, 6	0, 45	31	8, 2	1, 6				
	30	-0, 20	32	6, 2	1, 2	0, 43	32	7, 3	1, 2	-0, 14	31	6, 6	1, 5				
			30				32				31						
February	9	+0, 10	28	7, 4	0, 7	-0, 11	30	8, 5	0, 7	+0, 17	30	5, 1	1, 6				
	19	0, 38		8, 1	0, 4	+0, 19		9, 2	0, 2	0, 47		3, 5	1, 4				
			26				29				28						
March	1	0, 64	23	8, 5	0, 1	0, 48	25	9, 4	0, 3	0, 75	25	2, 1	1, 2				
	11	0, 87	19	8, 4	0, 5	0, 73	22	9, 1	0, 8	1, 00	23	- 0, 9	1, 1				
	21	1, 06	16	7, 9	0, 8	0, 95	20	8, 3	1, 2	1, 23	19	+ 0, 2	0, 9				
	31	1, 22		7, 1	1, 1	1, 15		7, 1	1, 5	1, 42		1, 1	0, 7				
			12				15				17						
April	10	1, 34	09	6, 0	1, 4	1, 30	12	5, 6	1, 8	1, 59	14	1, 8	0, 5				
	20	1, 43	06	4, 6	1, 5	1, 42	10	3, 8	2, 0	1, 73	10	2, 3	0, 4				
	30	1, 49		3, 1	1, 6	1, 52		+ 1, 8	2, 0	1, 83		2, 7	0, 3				
			02				04				07						
May	10	1, 51	01	+ 1, 5	1, 6	1, 56	02	- 0, 2	2, 1	1, 90	05	3, 0	0, 1				
	20	1, 50	03	- 0, 1	1, 6	1, 58	01	2, 3	2, 0	1, 95	01	3, 1	0, 0				
	30	1, 47		1, 7	1, 5	1, 57		4, 3	1, 9	1, 96		3, 1	0, 1				
			06				05				01						
June	9	1, 41	09	3, 2	1, 3	1, 52	08	6, 2	1, 8	1, 95	04	3, 0	0, 2				
	19	1, 32	10	4, 5	1, 1	1, 44	10	8, 0	1, 5	1, 91	07	2, 8	0, 2				
	29	1, 22		5, 6	0, 9	1, 34		9, 5	1, 2	1, 84		2, 6	0, 4				
			12				13				09						
July	9	1, 10	14	6, 5	0, 7	1, 21	14	10, 7	1, 0	1, 75	11	2, 2	0, 3				
	19	0, 96	14	7, 2	0, 5	1, 07	17	11, 7	0, 6	1, 64	13	1, 9	0, 5				
	29	0, 82		7, 7	0, 1	0, 90		12, 3	0, 3	1, 51		1, 4	0, 5				
			15				16				14						
August	8	0, 67	16	7, 8	0, 2	0, 74	18	12, 6	0, 1	1, 37	15	0, 9	0, 5				
	18	0, 51	13	7, 6	0, 4	0, 56	17	12, 5	0, 4	1, 22	14	+ 0, 4	0, 5				
	28	0, 38		7, 2	0, 7	0, 39		12, 1	0, 9	1, 08		- 0, 1	0, 6				
			14				17				13						
Septemb.	7	0, 24	10	6, 5	1, 1	0, 22	15	11, 2	1, 2	0, 95	13	0, 7	0, 4				
	17	0, 14	08	5, 4	1, 3	+0, 07	12	10, 0	1, 4	0, 82	09	1, 1	0, 5				
	27	0, 06		4, 1	1, 7	-0, 05		8, 6	1, 8	0, 73		1, 6	0, 3				
			04				08				07						
October	7	0, 02	02	2, 4	1, 9	0, 13	05	6, 8	2, 2	0, 66	03	1, 9	0, 2				
	17	0, 00	03	- 0, 5	2, 1	0, 18	00	4, 6	2, 4	0, 63	01	2, 1	0, 1				
	27	0, 03		+ 1, 6	2, 4	0, 18		- 2, 2	2, 6	0, 64		2, 0	0, 2				
			08				04				07						
Novemb.	6	0, 11	14	4, 0	2, 7	0, 14	11	+ 0, 4	2, 8	0, 71	12	1, 8	0, 5				
	16	0, 25	17	6, 7	2, 6	-0, 03	16	3, 2	3, 0	0, 83	16	1, 3	0, 8				
	26	0, 42		9, 3	2, 7	+0, 13		6, 2	3, 0	0, 99		- 0, 5	0, 8				
			23				19				20						
Decemb.	6	0, 65	27	12, 0	2, 8	0, 32	25	9, 2	3, 0	1, 19	25	+ 0, 3	1, 1				
	16	0, 92	28	14, 8	2, 6	0, 57	29	12, 2	2, 8	1, 44	28	1, 4	1, 4				
	26	1, 20		17, 4	1, 2	0, 86	15	15, 0	1, 3	1, 72		2, 8	0, 7				
	31	1, 35		18, 6		1, 01		16, 3		1, 87		3, 5					
Mean Place, } Jan. 1, 1831. }		H. M. S. 14. 7. 57, 37				H. M. S. 69. 56. 1, 5				H. M. S. 62. 12. 31, 9				H. M. S. 144. 32. 64			
		105. 20. 0, 8															

TRUE PLACES OF THE PRINCIPAL FIXED STARS.

831.	40. β Draconis.				41. α Ophiuchi.				42. γ Draconis.			
	Corrections for				Corrections for				Corrections for			
	A. R. in Time.		N. P. D.		A. R. in Time.		N. P. D.		A. R. in Time.		N. P. D.	
	s.	Diff.	"	Diff.	s.	Diff.	"	Diff.	s.	Diff.	"	Diff.
ry 0 N.	-2, 43	,21	- 3, 9	3,5	-1,75	,19	- 6, 8	2,2	-2,37	,17	- 5, 4	3,4
10	2, 22	,26	- 0, 4	3,2	1,56	,21	4, 6	2,2	2,20	,21	- 2, 0	3,4
20	1,96	,31	+ 2, 8	2,9	1,35	,24	2, 4	1,9	1,99	,28	+ 1, 4	3,0
30	1,65	,34	5, 7	2,4	1,11	,26	- 0, 5	1,7	1,71	,31	4, 4	2,6
ary 9	1,31	,38	8, 1	1,9	0,85	,29	+ 1, 2	1,4	1,40	,35	7, 0	2,1
19	0,93	,40	10, 0	1,3	0,56	,28	2, 6	1,0	1,05	,37	9, 1	1,6
... 1	0,53	,40	11, 3	0,6	-0,28	,29	3, 6	0,6	0,68	,40	10, 7	0,9
11	-0,13	,40	11, 9	0,0	+0,01	,29	4, 2	0,2	-0,28	,40	11, 6	0,2
21	+0,27	,40	11, 9	0,6	0,30	,29	4, 4	0,2	+0,12	,39	11, 8	0,4
31	0,67	,37	11, 3	1,2	0,59	,26	4, 2	0,6	0,51	,37	11, 4	0,9
... 10	1,04	,34	10, 1	1,8	0,85	,25	3, 6	1,0	0,88	,36	10, 5	1,5
20	1,38	,31	8, 3	2,2	1,10	,23	2, 6	1,3	1,24	,33	9, 0	2,0
30	1,69	,25	6, 1	2,6	1,33	,22	+ 1, 3	1,5	1,57	,28	7, 0	2,5
... 10	1,94	,21	3, 5	3,0	1,55	,18	-0,2	1,7	1,85	,24	4, 5	2,8
20	2,15	,16	+ 0, 5	3,0	1,73	,15	1, 9	1,9	2,09	,19	+ 1, 7	3,0
30	2,31	,09	- 2, 5	3,2	1,88	,11	3, 8	1,8	2,28	,13	- 1, 3	3,2
... 9	2,40	,04	5, 7	3,2	1,99	,08	5, 6	1,9	2,41	,07	4, 5	3,1
19	2,44	,02	8, 9	3,0	2,07	,05	7, 5	1,8	2,48	,02	7, 6	3,2
29	2,42	,09	11, 9	2,9	2,12	,01	9, 3	1,7	2,50	,05	10, 8	3,1
... 9	2,33	,14	14, 8	2,7	2,13	,03	11, 0	1,5	2,45	,10	13, 9	2,8
19	2,19	,19	17, 5	2,3	2,10	,07	12, 5	1,4	2,35	,15	16, 7	2,6
29	2,00	,25	19, 8	1,9	2,03	,11	13, 9	1,1	2,20	,21	19, 3	2,2
st. 8	1,75	,28	21, 7	1,5	1,92	,12	15, 0	0,9	1,99	,25	21, 5	1,8
18	1,47	,31	23, 2	1,1	1,80	,16	15, 9	0,7	1,74	,29	23, 3	1,3
28	1,16	,34	24, 3	0,5	1,64	,17	16, 6	0,4	1,45	,33	24, 6	1,0
mb. 7	0,82	,35	24, 8	0,1	1,47	,18	17, 0	0,1	1,12	,33	25, 6	0,4
17	0,47	,35	24, 9	0,4	1,29	,19	17, 1	0,2	0,79	,34	26, 0	0,1
27	+0,12	,34	24, 5	1,0	1,10	,17	16, 9	0,5	0,45	,35	25, 9	0,6
er 7	-0,22	,31	23, 5	1,4	0,93	,15	16, 4	0,7	+0,10	,33	25, 3	1,2
17	0,53	,28	22, 1	2,0	0,78	,14	15, 7	1,1	-0,23	,29	24, 1	1,6
27	0,81	,23	20, 1	2,4	0,64	,10	14, 6	1,4	0,52	,24	22, 5	2,1
nb. 6	1,04	,19	17, 7	2,8	0,54	,07	13, 2	1,6	0,76	,22	20, 4	2,6
16	1,23	,11	14, 9	3,1	0,47	,01	11, 6	1,8	0,98	,14	17, 8	2,9
26	1,34	,05	11, 8	3,4	0,46	,02	9, 8	2,1	1,12	,09	14, 9	3,2
nb. 6	1,39	,03	8, 4	3,5	0,48	,07	7, 7	2,1	1,21	,01	11, 7	3,4
16	1,36	,10	4, 9	3,7	0,55	,13	5, 6	2,3	1,22	,06	8, 3	3,6
26	1,26	,08	- 1, 2	1,7	0,68	,08	3, 3	1,2	1,16	,03	4, 7	1,8
31	1,18		+ 0, 5		0,76		2, 1		1,11		2, 9	
Place, 1831.	H. M. S. 17.26.37, 03	" 37. 34. 13, 1	H. M. S. 17.27. 5, 63	" 77. 18. 35, 6	H. M. S. 17.52.41, 13	" 38. 29. 17, 3						

TRUE PLACES OF THE PRINCIPAL FIXED STARS.

1831.	37. δ Ophiuchi.				38. Antares.				39. α Herculis.			
	Corrections for				Corrections for				Corrections for			
	A. R. in Time.		N. P. D.		A. R. in Time.		N. P. D.		A. R. in Time.		N. P.	
	s.	Diff.	"	Diff.	s.	Diff.	"	Diff.	s.	Diff.	"	
January 0 N.	-1,55	,27	- 8,7	1,6	-1,66	,27	-13,2	0,6	-1,73	,19	- 6,2	
10	1,28	,28	7,1	1,6	1,39	,30	12,6	0,6	1,54	,24	3,9	
20	1,00	,30	5,5	1,6	1,09	,33	12,0	0,8	1,30	,26	- 1,8	
30	0,70	,30	3,9	1,6	0,76	,33	11,2	0,8	1,04	,26	+ 0,3	
		,30		1,4		,33		0,9		,27		
February 9	0,40	,30	2,5	1,1	0,43	,33	10,3	0,9	0,77	,28	2,1	
19	-0,10	,29	1,4	1,0	-0,10	,33	9,4	0,9	0,49	,28	3,3	
		,29		1,0		,33		0,9		,29		
March ... 1	+0,19	,28	- 0,4	0,7	+0,23	,32	8,5	0,9	-0,20	,29	4,3	
11	0,47	,26	+ 0,3	0,4	0,55	,30	7,6	0,8	+0,09	,29	4,9	
21	0,73	,25	0,7	0,2	0,85	,28	6,8	0,8	0,38	,28	5,0	
31	0,98	,22	0,9	0,1	1,13	,27	6,0	0,8	0,66	,26	4,7	
		,22		0,1		,27		0,8		,26		
April ... 10	1,20	,20	+ 0,8	0,3	1,40	,24	5,2	0,7	0,92	,24	4,0	
20	1,40	,17	+ 0,5	0,5	1,64	,22	4,5	0,6	1,16	,21	2,9	
30	1,57	,16	0,0	0,6	1,86	,18	3,9	0,6	1,37	,20	+ 1,6	
		,16		0,6		,18		0,6		,20		
May ... 10	1,73	,12	- 0,6	0,8	2,04	,15	3,3	0,5	1,57	,17	0,0	
20	1,85	,08	1,4	0,8	2,19	,12	2,8	0,6	1,74	,13	- 1,8	
30	1,93	,06	2,2	0,8	2,31	,08	2,2	0,4	1,87	,09	3,7	
		,06		0,8		,08		0,4		,09		
June ... 9	1,99	,02	3,0	0,9	2,39	,04	1,8	0,4	1,96	,07	5,6	
19	2,01	,01	3,9	0,8	2,43	,01	1,4	0,3	2,03	,02	7,5	
29	2,00	,03	4,7	0,8	2,44	,03	1,1	0,3	2,05	,01	9,4	
		,03		0,8		,03		0,3		,01		
July ... 9	1,97	,08	5,5	0,7	2,41	,07	0,8	0,2	2,04	,04	11,1	
19	1,89	,10	6,2	0,6	2,34	,10	0,6	0,1	2,00	,09	12,6	
29	1,79	,12	6,8	0,6	2,24	,13	0,5	0,0	1,91	,12	14,0	
		,12		0,6		,13		0,0		,12		
August ... 8	1,67	,14	7,4	0,4	2,11	,16	0,5	0,1	1,79	,14	15,1	
18	1,53	,16	7,8	0,3	1,95	,17	0,6	0,2	1,65	,15	15,9	
28	1,37	,15	8,1	0,3	1,78	,18	0,8	0,3	1,50	,18	16,6	
		,15		0,3		,18		0,3		,18		
Septemb. 7	1,22	,17	8,4	0,1	1,60	,18	1,1	0,3	1,32	,19	16,9	
17	1,05	,15	8,3	0,1	1,42	,17	1,4	0,5	1,13	,18	16,9	
27	0,90	,13	8,2	0,2	1,25	,14	1,9	0,5	0,95	,17	16,6	
		,13		0,2		,14		0,5		,17		
October 7	0,77	,10	8,0	0,5	1,11	,11	2,4	0,5	0,78	,16	16,0	
17	0,67	,07	7,5	0,7	1,00	,08	2,9	0,5	0,62	,12	15,1	
27	0,60	,02	6,8	0,8	0,92	,03	3,4	0,4	0,50	,09	13,9	
		,02		0,8		,03		0,4		,09		
Novemb. 6	0,58	,02	6,0	1,0	0,89	,01	3,8	0,3	0,41	,04	12,4	
16	0,60	,07	5,0	1,2	0,90	,07	4,1	0,2	0,37	,00	10,6	
26	0,67	,13	3,8	1,4	0,97	,13	4,3	0,1	0,37	,05	8,6	
		,13		1,4		,13		0,1		,05		
Decemb. 6	0,80	,17	2,4	1,5	1,10	,22	4,4	0,2	0,42	,09	6,4	
16	0,97	,20	- 0,9	1,6	1,28	,22	4,2	0,3	0,51	,14	4,0	
26	1,17	,12	+ 0,7	0,9	1,50	,13	3,9	0,2	0,65	,09	1,6	
31	1,29		1,6		1,63		3,7		0,74		0,4	
Mean Place, Jan. 1, 1831.	H. M. S. 16.5.29,87		S. 15. 93. 15.	" 7,1	H. M. S. 16.19.3,41		S. 16. 116.2.52,1		H. M. S. 17.6.56,72		S. 24. 75.24	

TRUE PLACES OF THE PRINCIPAL FIXED STARS.

1831.	40. β Draconis.				41. α Ophiuchi.				42. γ Draconis.			
	Corrections for				Corrections for				Corrections for			
	A. R. in Time.		N. P. D.		A. R. in Time.		N. P. D.		A. R. in Time.		N. P. D.	
	s.	Diff.	"	Diff.	s.	Diff.	"	Diff.	s.	Diff.	"	Diff.
ary 0 N.	-2,43	,21	- 3,9	3,5	-1,75	,19	- 6,8	2,2	-2,37	,17	- 5,4	3,4
10	2,22	,26	- 0,4	3,2	1,56	,21	4,6	2,2	2,20	,21	- 2,0	3,4
20	1,96	,31	+ 2,8	2,9	1,35	,24	2,4	1,9	1,99	,28	+ 1,4	3,0
30	1,65	,34	5,7	2,4	1,11	,26	- 0,5	1,7	1,71	,31	4,4	2,6
ary 9	1,31	,38	8,1	1,9	0,85	,29	+ 1,2	1,4	1,40	,35	7,0	2,1
19	0,93	,40	10,0	1,3	0,56	,28	2,6	1,0	1,05	,37	9,1	1,6
h .. 1	0,53	,40	11,3	0,6	-0,28	,29	3,6	0,6	0,68	,40	10,7	0,9
11	-0,13	,40	11,9	0,0	+0,01	,29	4,2	0,2	-0,28	,40	11,6	0,2
21	+0,27	,40	11,9	0,6	0,30	,29	4,4	0,2	+0,12	,39	11,8	0,4
31	0,67	,37	11,3	1,2	0,59	,26	4,2	0,6	0,51	,37	11,4	0,9
.... 10	1,04	,34	10,1	1,8	0,85	,25	3,6	1,0	0,88	,36	10,5	1,5
20	1,38	,31	8,3	2,2	1,10	,23	2,6	1,3	1,24	,33	9,0	2,0
30	1,69	,25	6,1	2,6	1,33	,22	+ 1,3	1,5	1,57	,28	7,0	2,5
.... 10	1,94	,21	3,5	3,0	1,55	,18	-0,2	1,7	1,85	,24	4,5	2,8
20	2,15	,16	+ 0,5	3,0	1,73	,15	1,9	1,9	2,09	,19	+ 1,7	3,0
30	2,31	,09	- 2,5	3,2	1,88	,11	3,8	1,8	2,28	,13	- 1,3	3,2
.... 9	2,40	,04	5,7	3,2	1,99	,08	5,6	1,9	2,41	,07	4,5	3,1
19	2,44	,02	8,9	3,0	2,07	,05	7,5	1,8	2,48	,02	7,6	3,2
29	2,42	,09	11,9	2,9	2,12	,01	9,3	1,7	2,50	,05	10,8	3,1
.... 9	2,33	,14	14,8	2,7	2,13	,03	11,0	1,5	2,45	,10	13,9	2,8
19	2,19	,19	17,5	2,3	2,10	,07	12,5	1,4	2,35	,15	16,7	2,6
29	2,00	,25	19,8	1,9	2,03	,11	13,9	1,1	2,20	,21	19,3	2,2
ust.. 8	1,75	,28	21,7	1,5	1,92	,12	15,0	0,9	1,99	,25	21,5	1,8
18	1,47	,31	23,2	1,1	1,80	,16	15,9	0,7	1,74	,29	23,3	1,3
28	1,16	,34	24,3	0,5	1,64	,17	16,6	0,4	1,45	,33	24,6	1,0
emb. 7	0,82	,35	24,8	0,1	1,47	,18	17,0	0,1	1,12	,33	25,6	0,4
17	0,47	,35	24,9	0,4	1,29	,19	17,1	0,2	0,79	,34	26,0	0,1
27	+0,12	,34	24,5	1,0	1,10	,17	16,9	0,5	0,45	,35	25,9	0,6
ber 7	-0,22	,31	23,5	1,4	0,93	,15	16,4	0,7	+0,10	,33	25,3	1,2
17	0,53	,28	22,1	2,0	0,78	,14	15,7	1,1	-0,23	,29	24,1	1,6
27	0,81	,23	20,1	2,4	0,64	,10	14,6	1,4	0,52	,24	22,5	2,1
emb. 6	1,04	,19	17,7	2,8	0,54	,07	13,2	1,6	0,76	,22	20,4	2,6
16	1,23	,11	14,9	3,1	0,47	,01	11,6	1,8	0,98	,14	17,8	2,9
26	1,34	,05	11,8	3,4	0,46	,02	9,8	2,1	1,12	,09	14,9	3,2
emb. 6	1,39	,03	8,4	3,5	0,48	,07	7,7	2,1	1,21	,01	11,7	3,4
16	1,36	,10	4,9	3,7	0,55	,13	5,6	2,3	1,22	,06	8,3	3,6
26	1,26	,08	- 1,2	1,7	0,68	,08	3,3	1,2	1,16	,05	4,7	1,8
31	1,18		+ 0,5		0,76		2,1		1,11		2,9	
n Place, } 1, 1831. }	H. M. S.		"		H. M. S.		"		H. M. S.		"	
	17.26.37,03		37.34.13,1		17.27.5,63		77.18.35,6		17.52.41,13		88.29.17,3	

TRUE PLACES OF THE PRINCIPAL FIXED STARS.

		43. δ Ursæ Minoris.				44. α Lyrae.				45. β Lyrae.			
1831.		Corrections for				Corrections for				Corrections for			
		A. R. in Time.		N. P. D.		A. R. in Time.		N. P. D.		A. R. in Time.		N. P. D.	
		s.	Diff.	"	Diff.	s.	Diff.	"	Diff.	s.	Diff.	"	Diff.
January	0 N.	-18,50	.01	- 7,9	3,4	-1,96	.11	- 7,3	3,1	-1,89	.10	- 7,5	2,9
	10	18,51	.70	- 4,5	3,3	1,85	.15	- 4,2	3,1	1,79	.15	- 4,6	2,9
	20	17,81	.70	- 1,2	3,2	1,70	.21	- 1,1	2,9	1,64	.19	- 1,7	2,8
	30	16,43	1,38	+ 2,0		1,49		+ 1,8		1,45		+ 1,1	
			.9,01		2,8		.23		2,6		.21		2,4
February	9	14,42	2,53	4,8		1,26	.28	4,4	2,1	1,24	.26	3,5	2,1
	19	11,89		7,2	2,4	0,98		6,5		0,98		5,6	
			3,02		1,9		.29		1,7		.27		1,6
March	1	8,87	3,32	9,1		0,69		8,2		0,71	.30	7,2	1,2
	11	5,55	3,50	10,4	1,3	0,36	.33	9,4	1,2	0,41	.31	8,4	0,6
	21	- 2,05	3,55	11,1	0,7	-0,04	.32	9,9	0,5	-0,10	.31	9,0	0,0
	31	+ 1,50		11,2	0,1	+0,29		9,9	0,0	+0,21		9,0	
			3,40		0,4		.33		0,6		.32		0,5
April	10	4,99	3,20	10,8		0,62		9,3		0,53	.30	8,5	1,0
	20	8,28	2,97	9,7	1,1	0,94	.32	8,2	1,1	0,83	.29	7,5	1,5
	30	11,25	2,97	8,1	1,6	1,24	.30	6,5	1,7	1,12		6,0	
			2,57		2,1		.28		2,0		.28		1,9
May	10	13,82	2,07	6,0		1,52		4,5		1,40	.25	4,1	
	20	15,89	1,51	3,5	2,5	1,77	.25	+ 2,1	2,4	1,65	.22	+ 1,8	2,3
	30	17,40		+ 0,7	2,8	1,98	.21	- 0,6	2,7	1,87		- 0,7	2,5
			0,91		3,0		.19		3,0		.19		2,7
June	9	18,31	0,30	- 2,3	3,1	2,17	.12	3,6	2,9	2,06	.14	3,4	2,9
	19	18,61	0,35	5,4	3,2	2,29	.08	6,5	3,0	2,20	.10	6,3	2,8
	29	18,26		8,6		2,37		9,5		2,30		9,1	
			0,96		3,1		.04		2,9		.07		2,8
July	9	17,30	1,57	11,7	3,0	2,41	.02	12,4	2,8	2,37	.00	11,9	2,7
	19	15,73	2,11	14,7	2,8	2,39	.06	15,2	2,6	2,37	.04	14,6	2,5
	29	13,62		17,5		2,33		17,8		2,33		17,1	
			2,65		2,5		.11		2,3		.07		2,2
August	8	10,97	3,10	20,0	2,2	2,22	.16	20,1	2,0	2,26	.13	19,3	2,0
	18	7,87	3,40	22,2	1,9	2,06	.18	22,1	1,7	2,13	.16	21,3	1,6
	28	4,38		24,1		1,88		23,8		1,97		22,9	
			3,82		1,3		.22		1,2		.19		1,2
Septemb.	7	+ 0,56	4,04	25,4	1,0	1,66	.24	25,0	0,8	1,78	.22	24,1	0,8
	17	- 3,48	4,20	26,4	0,5	1,42	.26	25,8	0,4	1,56	.23	24,9	0,4
	27	7,68		26,9		1,16		26,2		1,33		25,3	
			4,23		0,0		.25		0,1		.23		0,0
October	7	11,91	4,10	26,9	0,6	0,91	.25	26,1	0,7	1,10	.24	25,3	0,4
	17	16,10	4,05	26,3	1,0	0,66	.23	25,4	1,0	0,86	.22	24,9	1,0
	27	20,15		25,3		0,43		24,4		0,64		23,9	
			3,77		1,6		.21		1,6		.19		1,3
Novemb.	6	23,92	3,43	23,7	2,0	0,22	.17	22,8	1,9	0,45	.17	22,6	1,8
	16	27,35	2,98	21,7	2,5	+0,05	.13	20,9	2,4	0,28	.12	20,8	2,1
	26	30,33		19,2		-0,08		18,5		0,16		18,7	
			2,43		2,8		.08		2,6		.08		2,4
Decemb.	6	32,76	1,81	16,4	3,1	0,16	.04	15,9	3,0	0,08	.02	16,3	2,8
	16	34,57	1,14	13,3	3,3	0,20	.03	12,9	3,1	0,06	.01	13,5	2,8
	26	35,71	0,30	10,0	1,7	0,17	.04	9,8	1,6	0,07	.03	10,7	1,5
	31	36,01		8,3		0,13		8,2		0,10		9,2	
Mean Place, Jan. 1, 1831.		H. M. S. 18.26.49,73		° ' " 3. 24. 50,8		H. M. S. 18.31.13,12		° ' " 51. 22. 7,5		H. M. S. 18.43.50,39		° ' " 56. 49. 42,0	

TRUE PLACES OF THE PRINCIPAL FIXED STARS.

1831.	46. ζ Aquilæ.				47. δ Draconis.				48. ε Aquilæ.			
	Corrections for				Corrections for				Corrections for			
	A. R.		N. P. D.		A. R.		N. P. D.		A. R.		N. P. D.	
	s.	Diff.	"	Diff.	s.	Diff.	"	Diff.	s.	Diff.	"	Diff.
January 0 N.	-1,78		-7,5	2,4	-3,03		-10,2	3,5	-1,81		-6,4	1,5
10	1,68	,10	5,1	2,4	3,05	,02	6,7	3,5	1,72	,09	4,9	1,4
20	1,54	,14	3,0	2,1	2,96	,09	-3,1	3,6	1,60	,12	3,5	1,4
30	1,36	,18	-1,1	1,9	2,76	,20	+0,3	3,4	1,43	,17	2,1	1,4
		,19		1,8		,30		3,2		,18		1,1
February 9	1,17		+0,7	1,4	2,46		3,5	2,8	1,25		-1,0	1,0
19	0,94	,23	2,1	1,2	2,07	,39	6,3	2,8	1,04	,21	0,0	
		,24		1,2		,45		2,4		,23		0,8
March . . 1	0,70		3,3	0,8	1,62	,52	8,7	1,8	0,81	,26	+0,8	0,4
11	0,44	,26	4,1	0,8	1,10	,57	10,5	1,8	0,55	,26	1,2	0,1
21	-0,17	,27	4,4	0,3	-0,53	,57	11,8	1,3	-0,28	,27	1,3	0,1
31	+0,12	,29	4,4	0,0	+0,06	,59	12,5	0,7	0,00	,28	1,2	0,1
		,29		0,5		,57		0,1		,28		0,5
April . . 10	0,41	,28	3,9	0,8	0,64	,59	12,4	0,7	+0,28	,29	+0,7	0,8
20	0,69	,28	3,1	1,3	1,23	,56	11,7	1,3	0,57	,29	-0,1	1,1
30	0,97	,28	1,8	1,3	1,79	,56	10,4	1,3	0,85	,28	1,2	1,1
		,26		1,5		,50		1,8		,27		1,2
May . . . 10	1,23		+0,3	1,7	2,29		8,6	2,3	1,12		2,4	1,5
20	1,47	,24	-1,4	1,9	2,75	,46	6,3	2,3	1,39	,27	3,9	1,5
30	1,70	,23	3,3	1,9	3,15	,40	3,5	2,8	1,63	,24	5,5	1,6
		,20		2,1		,31		3,0		,21		1,6
June . . . 9	1,90	,16	5,4	2,1	3,46	,22	+0,5	3,3	1,84	,19	7,1	1,7
19	2,06	,13	7,5	2,2	3,68	,14	-2,8	3,4	2,03	,15	8,8	1,6
29	2,19	,09	9,7	2,0	3,82	,04	6,2	3,4	2,18	,13	10,4	1,6
		,09		2,0		,04		3,4		,13		1,6
July . . . 9	2,28	,04	11,7	1,9	3,86	,05	9,6	3,4	2,31		12,0	1,4
19	2,32	,01	13,6	1,8	3,81	,15	13,0	3,3	2,38	,07	13,4	1,3
29	2,33	,03	15,4	1,6	3,66	,25	16,3	3,0	2,41	,03	14,7	1,2
		,03		1,6		,25		3,0		,01		1,2
August . . 8	2,30	,08	17,0	1,3	3,41	,32	19,3	2,8	2,40		15,9	0,9
18	2,22	,12	18,3	1,2	3,09	,40	22,1	2,4	2,35	,05	16,8	0,8
28	2,10	,13	19,5	0,8	2,69	,47	24,5	2,1	2,26	,09	17,6	0,5
		,13		0,8		,47		2,1		,12		0,5
Septemb. 7	1,97	,17	20,3	0,6	2,22	,53	26,6	1,6	2,14	,15	18,1	0,4
17	1,80	,18	20,9	0,2	1,69	,56	28,2	1,1	1,99	,16	18,5	0,2
27	1,62	,19	21,1	0,0	1,13	,59	29,3	0,6	1,83	,18	18,7	0,1
		,19		0,0		,59		0,6		,18		0,1
October 7	1,43	,19	21,1	0,4	+0,54	,60	29,9	0,0	1,65	,17	18,6	0,3
17	1,24	,17	20,7	0,6	-0,06	,59	29,9	0,5	1,48	,17	18,3	0,5
27	1,07	,15	20,1	0,9	0,65	,56	29,4	1,0	1,31	,14	17,8	0,7
		,15		0,9		,56		1,0		,14		0,7
Novemb. 6	0,92	,13	19,2	1,2	1,21	,53	28,4	1,6	1,17	,12	17,1	0,8
16	0,79	,08	18,0	1,5	1,74	,45	26,8	2,2	1,05	,10	16,3	1,1
26	0,71	,06	16,5	1,7	2,19	,37	24,6	2,6	0,95	,06	15,2	1,2
		,06		1,7		,37		2,6		,06		1,2
Decemb. 6	0,65	,02	14,8	1,9	2,56	,29	22,0	2,9	0,89	,01	14,0	1,3
16	0,63	,04	12,9	2,0	2,85	,18	19,1	3,3	0,88	,02	12,7	1,4
26	0,67	,03	10,9	1,0	3,03	,05	15,8	1,7	0,90	,04	11,3	0,8
31	0,70		9,9		3,08		14,1		0,94		10,5	
Mean Place, } Jan. 1, 1831. }	H. M. S. 18.57.38,59				H. M. S. 19.12.29,71				H. M. S. 19.16.58,55			
	76° 22.51,8				22.38.8,4				87° 12.54,5			

TRUE PLACES OF THE PRINCIPAL FIXED STARS.

1831.	49. γ Aquilæ.				50. α Aquilæ.				51. β Aquilæ.			
	Corrections for				Corrections for				Corrections for			
	A. R.		N. P. D.		A. R.		N. P. D.		A. R.		N. P. D.	
	<i>in Time.</i>				<i>in Time.</i>				<i>in Time.</i>			
	s.	Diff.	"	Diff.	s.	Diff.	"	Diff.	s.	Diff.	"	Diff.
January 0 N.	-1,70	,06	- 6,6	1,8	-1,70	,05	- 6,4	1,7	-1,70	,04	- 6,0	1,5
10	1,64	,09	4,8	1,7	1,65	,09	4,7	1,6	1,66	,10	4,5	1,5
20	1,55	,13	3,1	1,8	1,56	,14	3,1	1,6	1,56	,10	3,0	1,5
30	1,42	,16	- 1,3	1,5	1,42	,16	- 1,5	1,5	1,44	,12	1,5	1,3
February 9	1,26	,20	+ 0,2	1,3	1,26	,19	0,0	1,2	1,29	,19	- 0,2	1,1
19	1,06	,22	1,5	1,0	1,07	,21	+ 1,2	0,9	1,10	,22	+ 0,9	0,9
March .. 1	0,84	,24	2,5	0,7	0,86	,24	2,1	0,6	0,88	,24	1,8	0,5
11	0,60	,26	3,2	0,3	0,62	,25	2,7	0,4	0,64	,24	2,3	0,3
21	0,34	,27	3,5	0,0	0,37	,28	3,1	0,1	0,39	,25	2,6	0,1
31	-0,07	,28	3,5	0,4	-0,09	,28	3,0	0,5	-0,12	,27	2,5	0,5
April.... 10	+0,21	,29	3,1	0,8	+0,19	,29	2,5	0,8	+0,16	,29	2,0	0,7
20	0,50	,29	2,3	1,1	0,48	,29	1,7	1,1	0,45	,28	1,3	1,1
30	0,79	,29	+ 1,2	1,4	0,77	,28	+ 0,6	1,4	0,73	,28	+ 0,2	1,4
May.... 10	1,08	,26	- 0,2	1,7	1,05	,27	- 0,8	1,6	1,02	,27	- 1,2	1,5
20	1,34	,25	1,9	1,8	1,32	,26	2,4	1,8	1,29	,27	2,7	1,7
30	1,59	,23	3,7	2,0	1,58	,23	4,2	1,9	1,55	,26	4,4	1,8
June.... 9	1,82	,20	5,7	2,0	1,81	,21	6,1	2,0	1,78	,21	6,2	1,9
19	2,02	,16	7,7	2,0	2,02	,17	8,1	2,0	1,99	,21	8,1	1,9
29	2,18	,13	9,7	2,0	2,19	,17	10,1	1,9	2,16	,17	9,9	1,8
July.... 9	2,31	,09	11,7	2,0	2,32	,13	12,0	1,9	2,30	,14	11,7	1,8
19	2,40	,09	13,7	2,0	2,42	,10	13,8	1,8	2,40	,10	13,4	1,7
29	2,44	,04	15,4	1,7	2,46	,04	15,5	1,7	2,45	,05	15,0	1,6
August.. 8	2,44	,00	16,6	1,6	2,46	,01	15,5	1,5	2,45	,01	15,0	1,3
18	2,40	,04	17,0	1,4	2,47	,04	17,0	1,3	2,46	,03	16,3	1,2
28	2,32	,08	18,4	1,1	2,43	,07	18,3	1,1	2,43	,07	17,5	1,0
Septemb. 7	2,21	,11	19,5	0,9	2,36	,10	19,4	0,9	2,36	,09	18,5	0,7
17	2,07	,14	20,4	0,6	2,26	,13	20,3	0,6	2,27	,13	19,2	0,6
27	1,91	,16	21,0	0,4	2,13	,16	20,9	0,3	2,14	,13	19,8	0,3
October 7	1,73	,18	21,4	0,2	1,97	,17	21,2	0,1	1,98	,16	20,1	0,0
17	1,55	,16	21,6	0,7	1,80	,16	21,3	0,7	1,81	,17	20,1	0,2
27	1,39	,16	21,4	0,5	1,62	,18	21,2	0,1	1,64	,17	19,9	0,2
Novemb. 6	1,23	,14	20,9	0,5	1,46	,16	20,8	0,4	1,48	,16	19,5	0,4
16	1,09	,11	20,7	0,7	1,30	,16	20,7	0,7	1,32	,16	19,6	0,6
26	0,98	,08	20,2	1,5	1,16	,10	20,1	0,9	1,18	,14	18,9	0,9
Decemb. 6	0,90	,03	19,3	1,1	1,06	,11	19,2	1,1	1,08	,10	18,0	1,1
16	0,87	,01	18,2	0,9	0,98	,08	18,1	1,3	0,99	,08	16,9	1,2
26	0,86	,02	16,7	1,8	0,94	,04	16,8	1,5	0,96	,04	15,7	1,3
31	0,88	,02	14,9	1,8	0,93	,01	15,3	1,6	0,95	,01	14,4	1,5
			13,2	1,7	0,95	,02	13,7	0,8	0,96	,01	12,9	1,5
			12,5	0,7			12,9				12,1	0,8
<i>Mean Place,</i> <i>Jan. 1, 1831.</i>	H. M. S. 19.38.13,54		" "	" "	H. M. S. 19.42.32,28		" "	" "	H. M. S. 19.47.0,78		" "	" "

TRUE PLACES OF THE PRINCIPAL FIXED STARS.

331.	52. 2 α Capricorni.				53. α Cygni.				54. 1st. 61 Cygni.			
	Corrections for				Corrections for				Corrections for			
	A. R. in Time.		N. P. D.		A. R. in Time.		N. P. D.		A. R. in Time.		N. P. D.	
	s.	Diff.	"	Diff.	s.	Diff.	"	Diff.	s.	Diff.	"	Diff.
ry 0 N.	-1,83	,04	-2,9	0,4	-1,57	,08	-11,4	2,9	-1,44	,05	-10,6	2,4
10	1,79	,04	2,5	0,3	1,65	,08	8,5	2,9	1,49	,05	8,2	2,6
20	1,71	,08	2,2	0,3	1,65	,00	5,6	3,0	1,49	,00	5,6	2,6
30	1,59	,12	2,0	0,2	1,61	,04	-2,6	3,0	1,45	,04	3,0	2,6
		,15		0,2		,09		3,0		,08		2,6
ary 9	1,44	,18	1,8	0,0	1,52	,15	+0,4	2,8	1,37	,12	-0,4	2,5
19	1,26		1,8	0,0	1,37		3,2	2,8	1,25		+2,1	2,5
		,20		0,2		,20		2,4		,17		2,2
... 1	1,06	,23	2,0	0,2	1,17	,23	5,6	2,2	1,08	,21	4,3	1,9
11	0,83	,26	2,2	0,5	0,94	,28	7,8	1,6	0,87	,24	6,2	1,4
21	0,57	,27	2,7	0,6	0,66	,31	9,4	1,1	0,63	,28	7,6	1,0
31	0,30		3,3	0,6	0,35		10,5		0,35		8,6	1,0
		,28		0,9		,33		0,5		,30		0,5
... 10	-0,02	,29	4,2	0,9	-0,02	,35	11,0	0,0	-0,05	,32	9,1	0,1
20	+0,27	,30	5,1	1,1	+0,33	,37	11,0	0,7	+0,27	,33	9,0	0,6
30	0,57		6,2	1,1	0,70		10,3		0,60		8,4	0,6
		,31		1,2		,36		1,2		,34		1,2
.. 10	0,88		7,4		1,06		9,1		0,94		7,2	
20	1,17	,29	8,5	1,1	1,41	,35	7,5	1,6	1,27	,33	5,5	1,7
30	1,45	,28	9,8	1,3	1,75	,34	5,3	2,2	1,61	,34	3,4	2,1
		,26		1,1		,30		2,6		,32		2,4
... 9	1,71	,23	10,9	1,1	2,05	,27	+2,7	2,8	1,93	,28	+1,0	2,8
19	1,94	,20	12,0	1,0	2,32	,27	-0,1	3,0	2,21	,26	-1,8	3,0
29	2,14		13,0		2,55	,23	3,1		2,47		4,8	
		,18		0,9		,19		3,2		,22		3,1
... 9	2,32	,13	13,9		2,74	,13	6,3	3,3	2,69	,17	7,9	3,1
19	2,45	,09	14,6	0,7	2,87	,07	9,6	3,2	2,86	,13	11,0	3,2
29	2,54		15,2	0,6	2,94		12,8		2,99	,13	14,2	3,2
		,04		0,3		,02		3,2		,08		3,1
st.. 8	2,58	,00	15,5		2,96		16,0		3,07		17,3	
18	2,58	,00	15,8	0,3	2,93	,03	19,0	3,0	3,09	,02	20,3	3,0
28	2,54	,04	15,9	0,1	2,84	,09	21,7	2,7	3,06	,03	23,0	2,7
		,07		0,1		,14		2,5		,07		2,5
mb. 7	2,47	,11	15,8	0,2	2,70	,18	24,2	2,2	2,99	,13	25,5	2,2
17	2,36	,11	15,6	0,2	2,52	,18	26,4	1,7	2,86	,13	27,7	1,8
27	2,22	,14	15,4	0,2	2,31	,21	28,1		2,70	,16	29,5	1,8
		,15		0,4		,25		1,3		,19		1,5
er 7	2,07	,16	15,0	0,4	2,06	,26	29,4	0,9	2,51	,21	31,0	1,0
17	1,91	,17	14,6	0,4	1,80	,27	30,3	0,3	2,30	,23	32,0	0,6
27	1,74		14,2		1,53		30,6		2,07		32,6	
		,15		0,5		,27		0,1		,21		0,1
mb. 6	1,59	,14	13,7	0,5	1,26	,25	30,5	0,8	1,86	,22	32,7	0,4
16	1,45	,11	13,2	0,5	1,01	,24	29,7	1,1	1,64	,21	32,3	0,8
26	1,34		12,7		0,77		28,6		1,43		31,5	
		,08		0,5		,21		1,5		,17		1,2
nb. 6	1,26	,05	12,2	0,4	0,56	,18	27,1	2,0	1,26	,15	30,3	1,6
16	1,21	,02	11,8	0,5	0,38	,14	25,1	2,4	1,11	,11	28,7	2,0
26	1,19	,01	11,3	0,2	0,24	,04	22,7	1,4	1,00	,04	26,7	1,2
31	1,20		11,1		0,20		21,3		0,96		25,5	
Place, } 1, 1831. }	H. M. S. 20. 8.40, 31	103. 3. 41, 7		H. M. S. 20. 35.40, 47	45. 19. 12, 2		H. M. S. 20. 59.20, 31	52. 4. 36, 9				

TRUE PLACES OF THE PRINCIPAL FIXED STARS.

1831.	55. α Cephei.				56. β Aquarii.				57. β Cephei.			
	Corrections for				Corrections for				Corrections for			
	A. R.		N. P. D.		A. R.		N. P. D.		A. R.		N. P. D.	
	in Time.		in Time.		in Time.		in Time.		in Time.		in Time.	
	s.	Diff.	"	Diff.	s.	Diff.	"	Diff.	s.	Diff.	"	Diff.
January 0 N.	-1,63	,21	-14,6		-1,57		-0,6		-1,80		-15,8	
10	1,84	,13	11,7	2,9	1,58	,01	+0,1	0,7	2,15	,35	13,2	2,6
20	1,97	,05	8,8	2,9	1,56	,02	0,7	0,6	2,40	,25	10,2	3,0
30	2,02		5,6	3,2	1,53	,03	1,2	0,5	2,54	,14	7,1	3,1
		,02		3,3		,06		0,4		,03		3,3
February 9	2,00	,11	-2,3	3,2	1,47	,11	1,6		2,57	,09	3,8	
19	1,89		+0,9		1,36		1,8	0,2	2,48		-0,4	3,4
		,20		3,0		,13		0,0		,21		3,1
March .. 1	1,69		3,9		1,23		1,8		2,27		+2,7	
11	1,43	,26	6,7	2,8	1,07	,16	1,6	0,2	1,97	,30	5,6	2,9
21	1,11	,32	9,0	2,3	0,87	,20	1,3	0,3	1,57	,40	8,2	2,6
31	0,72	,39	10,8	1,8	0,65	,22	+0,6	0,7	1,09	,48	10,3	2,1
		,43		1,3		,24		0,9		,54		1,6
April ... 10	-0,29	,45	12,1	0,8	0,41	,27	-0,3		-0,55	,59	11,9	1,0
20	+0,16	,48	12,9	0,0	-0,14	,28	1,4	1,1	+0,04	,62	12,9	0,3
30	0,64		12,9	0,0	+0,14		2,6	1,2	0,66		13,2	
		,50		0,6		,29		1,5		,63		0,2
May 10	1,14		12,3		0,43		4,1		1,29		13,0	
20	1,63	,49	11,2	1,1	0,74	,31	5,7	1,6	1,93	,64	12,1	0,9
30	2,09	,46	9,5	1,7	1,04	,30	7,3	1,6	2,54	,61	10,7	1,4
		,44		2,3		,29		1,7		,58		2,0
June 9	2,53	,40	7,2	2,6	1,33	,27	9,0		3,12		8,7	
19	2,93		4,6	2,6	1,60	,27	10,7	1,7	3,65	,53	6,3	2,4
29	3,28	,35	+1,7	2,9	1,85	,25	12,2	1,5	4,12	,47	3,5	2,8
		,30		3,2		,22		1,5		,38		3,1
July 9	3,58	,23	-1,5	3,4	2,07		13,7		4,50		+0,4	
19	3,81	,15	4,9	3,5	2,27	,20	15,0	1,3	4,80	,30	-3,0	3,4
29	3,96		8,4		2,42	,15	16,1	1,1	5,00	,20	6,6	3,6
		,07		3,5		,11		1,0		,11		3,6
August.. 8	4,03	,01	11,9	3,6	2,53	,07	17,1	0,7	5,11	,01	10,2	3,6
18	4,02	,09	15,5	3,4	2,60	,02	17,8	0,5	5,10	,11	13,8	3,5
28	3,93		18,9		2,62		18,3		4,99		17,3	
		,16		3,1		,02		0,3		,21		3,4
Septemb. 7	3,77	,24	22,0		2,60		18,6		4,78		20,7	
17	3,53	,30	24,9	2,9	2,54	,06	18,8	0,2	4,46	,32	23,8	3,1
27	3,23		27,4	2,5	2,45	,09	18,7	0,1	4,06	,40	26,7	2,9
		,35		2,1		,11		0,2		,48		2,4
October 7	2,88	,40	29,5	1,8	2,34	,14	18,5	0,3	3,58		29,1	
17	2,48	,43	31,3	1,2	2,20	,15	18,2	0,5	3,03	,55	31,0	1,9
27	2,05		32,5		2,05		17,7		2,44	,59	32,6	1,6
		,44		0,6		,14		0,5		,63		1,0
Novemb. 6	1,61		33,1		1,91		17,2		1,81		33,6	
16	1,16	,45	33,2	0,1	1,77	,14	16,6	0,6	1,18	,63	34,0	0,4
26	0,73	,43	32,8	0,4	1,63	,14	15,9	0,7	+0,55	,63	33,9	0,1
		,41		1,1		,11		0,8		,60		0,8
Decemb. 6	+0,32	,36	31,7	1,6	1,52	,09	15,1	0,7	-0,05	,55	33,1	1,3
16	-0,04	,32	30,1	2,1	1,43	,07	14,4	0,7	0,60	,49	31,8	1,9
26	0,36	,13	28,0		1,36		13,7	0,4	1,09		29,9	
31	0,49		26,8	1,2	1,33	,03	13,3		1,31	,22	28,8	1,1

Mean Place, } H. M. S. 21.14.32,49 28. 7. 42,7 21.22.39,39 96.15.35,5 21.26.26,85 20.10.48,4
 Jan. 1, 1831. }

TRUE PLACES OF THE PRINCIPAL FIXED STARS.

		58. α Aquarii.				59. Fomalhaut.				60. α Pegasi.			
		Corrections for				Corrections for				Corrections for			
		A. R.		N. P. D.		A. R.		N. P. D.		A. R.		N. P. D.	
		in Time.				in Time.				in Time.			
		s.	Diff.	"	Diff.	s.	Diff.	"	Diff.	s.	Diff.	"	Diff.
831.													
ry 0 N.	-1,33	07	-0,4	0,8	-1,54	11	+10,4	0,3	-0,89	12	-2,9	1,2	
10	1,40	03	+0,4	0,9	1,65	07	10,1	0,6	1,01	07	1,7	1,3	
20	1,43	00	1,3	0,7	1,72	05	9,5	0,6	1,08	07	-0,4	1,3	
30	1,43	00	2,0	0,7	1,77	05	8,6	0,9	1,14	06	+0,9	1,3	
				0,6		0,2		1,1		0,4		1,3	
ary 9	1,39		2,6		1,79		7,5		1,18		2,2		
19	1,33		3,1	0,5	1,78	01	6,1	1,4	1,18	00	3,5	1,3	
				0,2		0,4		1,5		0,3		1,1	
h .. 1	1,23		3,3	0,1	1,74		4,6	1,9	1,15	07	4,6	0,9	
11	1,10		3,4	0,2	1,65	09	2,7	2,0	1,08	10	5,5	0,7	
21	0,93		3,2	0,5	1,51	14	+0,7	2,1	0,98	10	6,2	0,7	
31	0,74		2,7	0,5	1,34	17	-1,4	2,1	0,84	14	6,5	0,3	
				0,7		0,20		2,1		0,17		0,1	
... 10	0,52	24	2,0	1,0	1,14	23	3,5	2,2	0,67	21	6,6	0,3	
20	0,28	27	+1,0	1,2	0,91	23	5,7	2,2	0,46	24	6,3	0,3	
30	-0,01		-0,2		0,64	27	7,8	2,1	-0,22		5,6	0,7	
				1,5		0,31		2,2		0,28		1,0	
... 10	+0,28	30	1,7	1,6	0,33	32	10,0	2,0	+0,06	28	4,6	1,3	
20	0,58	30	3,3	1,8	-0,01	32	12,0	2,0	0,34	30	3,3	1,3	
30	0,88	30	5,1	1,8	+0,31	32	13,9	1,9	0,64	30	+1,7	1,6	
				1,7		0,35		1,7		0,31		1,8	
... 9	1,17	28	6,8	1,8	0,66	35	15,6	1,5	0,95	30	-0,1	2,0	
19	1,45	26	8,6	2,0	1,01	35	17,1	1,1	1,25	29	2,1	2,2	
29	1,71		10,6		1,33	32	18,2		1,54		4,3	2,2	
				1,7		0,31		0,9		0,28		2,2	
... 9	1,96	22	12,3	1,7	1,64	29	19,1	0,5	1,82	25	6,5	2,2	
19	2,18	17	14,0	1,5	1,93	25	19,6	0,2	2,07	22	8,7	2,2	
29	2,35		15,5		2,18	25	19,8		2,29		10,9	2,2	
				1,3		0,21		0,1		0,18		2,2	
ast.. 8	2,49	09	16,8	1,1	2,39	17	19,7	0,5	2,47	15	13,1	2,0	
18	2,58	05	17,9	0,8	2,56	12	19,2	0,8	2,62	11	15,1	1,8	
28	2,63	05	18,7		2,68	12	18,4		2,73		16,9	1,8	
				0,7		0,07		1,0		0,06		1,6	
emb. 7	2,65	03	19,4	0,5	2,75	03	17,4	1,2	2,79	03	18,5	1,4	
17	2,62	06	19,9	0,2	2,78	02	16,2	1,4	2,82	01	19,9	1,2	
27	2,56		20,1		2,76	02	14,8		2,81		21,1	1,2	
				0,0		0,06		1,4		0,04		0,9	
ber 7	2,47	11	20,1	0,2	2,70	09	13,4	1,5	2,77	07	22,0	0,6	
17	2,36	12	19,9	0,2	2,61	12	11,9	1,4	2,70	10	22,6	0,6	
27	2,24		19,7		2,49		10,5		2,60		23,0	0,4	
				0,5		0,14		1,3		0,10		0,1	
mb. 6	2,10	14	19,2	0,6	2,35	15	9,2	1,1	2,50	13	23,1	0,1	
16	1,96	13	18,6	0,6	2,20	16	8,1	0,9	2,37	14	23,0	0,1	
26	1,83		18,0	0,6	2,04		7,2		2,23		22,7	0,3	
				0,8		0,15		0,7		0,14		0,5	
			17,2	0,8	1,89	15	6,5	0,5	2,09	12	22,2	0,8	
			16,4	0,8	1,74	13	6,0	0,0	1,97	13	21,4	1,0	
			6	0,4	1,61	13	6,0	0,0	1,84	13	20,4	1,0	
					1,55	06	6,0	0,0	1,79	05	19,9	0,5	
M. S.													

A Catalogue of 100 Principal Fixed Stars.

JANUARY 1, 1825.

No.	Names of Stars.	A. R.	Ann. Var.	N. P. D. Bradley's Refr.	Ann. Var.
		H. M. S.	S.	° ' "	"
1	γ Pegasi.....	0. 4. 14, 3	+ 3,08	75. 47. 21	-19,9
2	α Cassiopeie.....	0. 30. 38,0	3,33	34. 25. 26	19,8
3	β Ceti.....	0. 34. 48,1	3,02	108. 56. 54	19,9
4	γ Cassiopeie.....	0. 46. 13, 2	3,52	30. 14. 0	19,7
5	Polaris.....	0. 58. 16, 7	15,19	1. 37. 29	19,4
6	δ Cassiopeie.....	1. 14. 27,0	3,82	30. 40. 41	19,0
7	α Arietis.....	1. 57. 19,8	3,36	67. 22. 10	17,2
8	π Ceti.....	2. 35. 48,0	2,84	104. 36. 15	15,7
9	α „.....	2. 53. 8, 5	3,12	86. 36. 8	14,4
10	12 Eridani.....	3. 4. 38, 4	2,55	119. 40. 54	14,6
11	α Persei.....	3. 11. 52, 7	4,22	40. 46. 12	13,4
12	δ „.....	3. 30. 30, 7	4,22	42. 46. 51	12,1
13	η Tauri.....	3. 37. 6, 2	3,53	66. 26. 36	11,7
14	γ Eridani.....	3. 49. 52, 2	2,79	104. 0. 44	10,7
15	γ Tauri.....	4. 9. 51, 1	3,40	74. 48. 9	9,3
16	2 δ „.....	4. 14. 1, 4	3,43	72. 58. 8	9,0
17	ε „.....	4. 18. 24, 6	3,49	71. 12. 58	8,6
18	Aldebaran.....	4. 25. 53, 4	3,43	73. 51. 2	7,7
19	Capella.....	5. 3. 46, 7	4,41	44. 11. 28	4,4
20	Rigel.....	5. 6. 8, 0	2,88	98. 24. 39	4,5
21	β Tauri.....	5. 15. 14, 3	3,79	61. 32. 59	3,7
22	γ Orionis.....	5. 15. 45, 2	3,20	83. 48. 59	3,8
23	δ „.....	5. 23. 4, 4	3,06	90. 26. 10	3,2
24	α Leporis.....	5. 25. 0, 9	2,63	107. 57. 15	3,1
25	ε Orionis.....	5. 27. 20, 4	3,03	91. 19. 17	2,8
26	σ „.....	5. 29. 58, 0	3,01	92. 42. 31	2,7
27	ζ „.....	5. 31. 56, 1	3,01	92. 2. 33	2,4
28	γ Leporis.....	5. 37. 10, 2	2,49	112. 30. 41	1,6
29	κ Orionis.....	5. 39. 27, 7	2,84	99. 44. 20	1,6
30	α „.....	5. 45. 42, 2	3,25	82. 38. 1	1,1
31	β Aurigæ.....	5. 46. 41, 8	4,39	45. 4. 53	- 1,2
32	γ Geminorum.....	6. 27. 36, 2	3,46	73. 27. 34	+ 2,4
33	ε „.....	6. 33. 9, 8	3,69	64. 42. 17	2,9
34	Sirius.....	6. 37. 26, 1	2,64	106. 28. 57	4,7
35	δ Geminorum.....	7. 9. 40, 0	3,59	67. 42. 12	6,0
36	Castor.....	7. 23. 25, 3	3,85	57. 44. 13	7,2
37	Procyon.....	7. 30. 8, 4	3,15	84. 20. 1	8,9
38	Pollux.....	7. 34. 35, 9	3,69	61. 33. 33	8,1
39	α Hydræ.....	9. 18. 59, 4	2,95	97. 54. 15	15,3
40	ε Leonis.....	9. 35. 54, 3	3,43	65. 25. 28	16,2
41	Regulus.....	9. 59. 2, 8	3,21	77. 10. 51	17,3
42	ζ Leonis.....	10. 6. 56, 5	3,36	65. 42. 50	17,6
43	γ „.....	10. 10. 18, 8	3,33	69. 16. 35	17,9
44	β Urs. Majoris.....	10. 51. 13, 6	3,71	32. 40. 53	19,1
45	α „.....	10. 52. 51, 0	3,80	27. 18. 22	19,3
46	δ Leonis.....	11. 4. 47, 5	3,21	68. 31. 7	19,6
47	β „.....	11. 40. 7, 8	3,07	74. 26. 58	20,1
48	β Virginis.....	11. 41. 35, 1	3,12	87. 14. 58	20,2
49	γ Urs. Majoris.....	11. 44. 35, 0	3,21	35. 19. 55	20,3
50	δ „.....	12. 6. 43, 4	3,00	31. 59. 39	20,4
51	κ Draconis.....	12. 25. 57, 6	2,62	19. 14. 45	20,5
52	δ Virginis.....	12. 46. 47, 7	3,02	85. 38. 57	19,7
53	Spica Virginis.....	13. 15. 59, 2	3,15	100. 14. 39	18,9
54	ζ Urs. Majoris.....	13. 16. 51, 8	2,41	34. 9. 29	19,1
55	η „.....	13. 40. 38, 2	2,37	39. 48. 37	18,2
56	α Draconis.....	13. 59. 39, 4	1,61	24. 47. 7	17,7
57	Arcturus.....	14. 7. 41, 1	2,73	69. 54. 7	19,9
58	θ Bootis.....	14. 19. 14, 5	2,04	37. 20. 12	16,6
59	π „.....	14. 32. 30, 3	2,81	72. 49. 33	15,5
60	ε „.....	14. 37. 20, 8	2,61	62. 10. 59	15,5

A Catalogue of 100 Principal Fixed Stars—continued.

JANUARY 1, 1825.

No.	Names of Stars.	A. R.	Ann. Var.	N. P. D. Bradley's Refr.	Ann. Var.
		H. M. S.	S.	° ' "	"
61	1 α Libræ	14. 41. 1,5	+ 3,30	105. 15. 45	+ 15,4
62	2 α „	14. 41. 13,0	+ 3,30	105. 18. 27	15,4
63	β Urs. Min.	14. 51. 18,9	— 0,31	15. 7. 45	14,8
64	β Libræ	15. 7. 36,2	+ 3,20	98. 43. 48	13,7
65	α Cor. Bor.	15. 27. 17,0	2,54	62. 41. 26	12,5
66	α Serpentis	15. 35. 39,4	2,95	83. 1. 1	11,7
67	δ Scorpii	15. 50. 0,3	3,53	112. 6. 51	10,7
68	β „	15. 55. 16,6	3,47	109. 19. 2	10,4
69	δ Ophiuchi	16. 5. 11,2	3,13	93. 14. 9	9,7
70	Antares	16. 18. 41,5	3,66	116. 2. 1	8,7
71	ζ Herculis	16. 34. 41,9	2,26	58. 4. 28	6,8
72	α „	17. 6. 40,5	2,73	75. 24. 10	4,6
73	β Draconis	17. 26. 29,1	1,34	37. 33. 55	2,9
74	α Ophiuchi	17. 26. 49,1	2,78	77. 18. 17	3,2
75	γ Draconis	17. 52. 32,9	+ 1,39	38. 29. 13	+ 0,7
76	δ Urs. Min.	18. 28. 44,8	— 19,12	3. 25. 6	— 2,4
77	α Lyræ	18. 31. 1,1	+ 2,03	51. 22. 25	3,0
78	ϵ Draconis	18. 39. 15,1	1,16	34. 38. 6	3,4
79	β Lyræ	18. 43. 37,3	2,20	56. 50. 5	3,8
80	ζ Aquilæ	18. 57. 22,2	2,75	76. 23. 22	4,9
81	51 δ Draconis	19. 0. 59,4	1,35	36. 52. 7	5,3
82	δ „	19. 12. 29,7	0,02	22. 38. 46	6,2
83	κ Cygni	19. 13. 3,3	1,38	36. 56. 57	6,4
84	δ Aquilæ	19. 16. 40,6	3,01	87. 13. 35	6,6
85	ι Cygni	19. 25. 17,6	1,51	38. 38. 21	7,3
86	γ Aquilæ	19. 37. 56,5	2,85	79. 48. 22	8,3
87	α „	19. 42. 14,8	2,93	81. 35. 12	8,9
88	β „	19. 46. 43,2	2,95	84. 1. 24	8,6
89	1 α Capricorni	20. 7. 56,6	3,34	103. 2. 28	10,7
90	2 α „	20. 8. 20,4	3,34	103. 4. 46	10,8
91	α Delphini	20. 31. 30,9	2,78	74. 41. 56	12,4
92	α Cygni	20. 35. 28,3	2,05	45. 20. 27	12,6
93	1st δ Cygni	20. 59. 3,8	2,77	52. 6. 21	17,6
94	α Cephei	21. 14. 23,9	1,45	28. 9. 13	15,0
95	β Aquarii	21. 22. 20,6	3,15	96. 20. 8	15,5
96	β Cephei	21. 26. 22,1	0,81	20. 12. 23	15,6
97	δ Capricorni	21. 37. 22,3	3,33	106. 54. 58	16,1
98	α Aquarii	21. 56. 47,7	3,09	91. 9. 57	17,0
99	α Pegasi	22. 56. 3,2	2,98	75. 44. 3	19,0
100	α Andromedæ	23. 59. 21,8	3,08	61. 52. 33	19,8

This Catalogue is deduced from the latest Observations that have been made, up to the present time.

*** From some late Observations, there is reason to conclude that the above right ascensions should be diminished by one-tenth of a second.

Royal Observatory,
Aug. 1, 1826.

Elements for computing the principal Lunar Occultations of the fixed Stars.

JANUARY 1831.

Conjunction in A. R.	Diff. Dec.	H. M.	Orb. Ang.	A. R.	D's Declin.	Nearest Approach.	Time of Nearest Approach.
D. H. M. S.	/ "	/ "	° /	H. M. S.	° / "	/ "	D. H. M. S.
α Ω 1. 16. 30. 10	53. 56 S.	33. 8	S. 75. 0 E.	9. 59. 22	11. 53. 23 N.	52. 6	1. 16. 4. 53
ρ Ω 2. 3. 54. 36	1. 59 N.	32. 98	73. 49	10. 23. 54	10. 12. 23	1. 54	2. 3. 55. 37
σ Ω 3. 3. 21. 7	26. 51 S.	31. 39	72. 4	11. 12. 25	6. 30. 25 N.	25. 33	3. 3. 5. 26
ι γ η 4. 20. 32. 4	12. 52 N.	30. 21	70. 57	12. 33. 5	0. 18. 21 S.	12. 9	4. 20. 40. 22
ψ ζ 8. 14. 57. 30	41. 34 N.	29. 37	76. 26	15. 26. 4	13. 31. 25	40. 24	8. 15. 17. 15
φ 9. 2. 21. 1	59. 55 S.	29. 43	77. 49	15. 46. 43	14. 46. 46	58. 34	9. 1. 55. 29
δ ζ 9. 18. 31. 13	5. 36 S.	30. 0	S. 80. 1 E.	16. 21. 27	16. 19. 37	5. 29	9. 18. 29. 17
λ 13. 0. 0. 47	24. 5 N.	31. 28	N. 86. 57 E.	19. 7. 42	18. 50. 30	24. 3	12. 23. 58. 20
μ 17. 1. 43. 13	21. 16 S.	33. 42	73. 3	22. 43. 46	8. 49. 54	20. 21	17. 1. 54. 16
ν 17. 11. 44. 42	11. 27 S.	33. 53	72. 17	23. 5. 32	7. 8. 58 S.	10. 55	17. 11. 50. 53
ξ 20. 7. 10. 28 *	37. 43 N.	35. 0	71. 41	1. 32. 38	5. 15. 26 N.	35. 49	20. 6. 50. 9
ζ Ceti 21. 3. 50. 37	74. 15 N.	35. 20	73. 8	2. 19. 10	8. 56. 4	71. 3	21. 3. 14. 1
μ 21. 11. 5. 42 *	45. 25 N.	35. 26	73. 48	2. 35. 48	10. 9. 5	43. 37	21. 10. 44. 13
f δ 22. 6. 40. 11 *	49. 9 N.	35. 41	76. 9	3. 21. 33	13. 10. 11	47. 44	22. 6. 20. 24
γ δ 23. 2. 53. 40 *	32. 47 N.	35. 50	79. 10	4. 10. 11	15. 45. 29	32. 11	23. 2. 43. 22
δ 23. 4. 7. 43	74. 35 S.	36. 50	79. 23	4. 13. 12	15. 53. 42	73. 19	23. 4. 30. 43
δ 23. 4. 36. 19	65. 51 S.	35. 51	79. 28	4. 14. 22	15. 56. 50	64. 44	23. 4. 56. 29
α Ω 23. 9. 26. 57 *	17. 42 N.	35. 53	N. 80. 17 E.	4. 26. 14	16. 27. 23	17. 27	23. 9. 21. 57
ρ Ω 29. 2. 19. 56	48. 11 S.	33. 29	S. 75. 6 E.	9. 59. 23	11. 59. 6	46. 33	29. 1. 57. 44
σ Ω 29. 13. 35. 33	8. 35 N.	33. 4	73. 55	10. 23. 55	10. 18. 55	8. 15	29. 13. 39. 52
30. 12. 39. 1	18. 50 S.	32. 13	72. 7	11. 12. 26	6. 38. 21 N.	17. 56	30. 12. 28. 14

Elements for computing the principal Lunar Occultations of the fixed Stars.

FEBRUARY 1831.

Conjunction in A. R.	Diff. Dec.	H. M.	Orb. Ang.	A. R.	Star's Declin.	Nearest Approach.	Time of Nearest Approach.
D. H. M. S.	/' "	/' "	° /	H. M. S.	° / "	/' "	D. H. M. S.
1 γ ϖ 1. 5. 5. 3	22.17 N.	30.52	S. 71. 0 E.	12.33. 6	0. 9. 1 S.	21. 4	1. 5. 19. 10
γ \triangle 4. 22. 48. 47	49.53 N.	29.33	76.22	15.26. 5	13.23. 9	48.29	4. 23. 12. 40
ψ \triangle 5. 10. 14. 49	52. 1 S.	29.36	77.45	15.48. 43	14.38. 56	50.51	5. 9. 52. 26
ϕ Opt. 6. 2. 30. 33	1.33 N.	29.45	S. 79.56 E.	16.21. 28	16.12. 31	1.31	6. 2. 31. 6
λ ϖ 9. 8. 24. 17	27. 1 N.	31.34	N. 87. 3 E.	19. 7. 43	18.47. 34	26.58	9. 8. 21. 39
ϕ ϖ 13. 8. 46. 39	23.49 S.	34.30	73. 8	22.43. 46	8.52. 27	22.48	13. 8. 58. 40
ϕ ϖ 13. 18. 33. 45	14.24 S.	34.42	72.23	23. 5. 32	7.11. 56 S.	13.44	13. 18. 41. 18
φ \times 16. 12. 37. 23	33. 0 N.	35.26	71.40	1.32. 38	5.10. 41 N.	31.20	16. 12. 19. 49
2 ξ Ceti 17. 9. 7. 26	69.25 N.	35.28	73. 7	2.19. 10	8.51. 12	66.26	17. 8. 33. 20
μ Ceti 17. 16. 21. 31	40.39 N.	35.29	73.49	2.35. 48	10. 4. 18	39. 2	17. 16. 2. 21
ν δ 18. 12. 0. 7 *	44.36 N.	35.34	76. 5	3.21. 33	13. 5. 37	43.17	18. 11. 41. 57
γ δ 19. 8. 27. 56 *	28.35 N.	35.17	79. 8	4.10. 11	15.41. 17	28. 4	19. 8. 18. 46
2 δ δ 19. 10. 12. 14	69.59 S.	35.17	79.25	4.14. 22	15.52. 41	68.47	19. 10. 34. 5
α δ 19. 15. 7. 53	13.43 N.	35.15	N. 80.15 E.	4.26. 14	16.23. 22	13.31	19. 15. 3. 56
α δ 25. 11. 10. 41	48.16 S.	33. 7	S. 75. 8 E.	9.59. 23	11.58. 59	46.40	25. 10. 48. 15
ρ δ 25. 22. 32. 21	8.45 N.	32.50	73.57	10.23. 55	10.19. 4	8.24	25. 22. 36. 46
σ δ 26. 21. 40. 44	18.18 S.	32.13	72. 9	11.12. 26	6.38. 51 N.	17.25	26. 21. 30. 17
1 γ ϖ 28. 13. 56. 5	23. 5 N.	31. 6	70.59	12.33. 7	0. 8. 16 S.	21.50	28. 14. 10. 36

Elements for computing the principal Lunar Occultations of the fixed Stars.
MARCH 1831.

Conjunction in A. R.	Diff. Dec.	H. M.	Orb. Ang.	A. R.	☉'s Declin.	Nearest Approach.	Time of Nearest Approach.
D. H. M. S.	′ ″	′ ″	° ′	H. M. S.	° ′ ″	′ ″	D. H. M. S.
☉ 4. 7. 2. 47	50.14 N.	29.35	S. 76.22 E.	15.26. 5	13. 22. 52 S.	48.49	4. 7. 26. 49
♄ 4.18.29. 7	51.48 S.	29.33	77.44	15.48.44	14.38.46	50.37	4.18. 6. 48
♅ 5.10.48.19	1.35 N.	29.35	S. 79.54 E.	16.21.29	16.12.31	1.33	5.10.48.53
♄ 8.17.34.28	26.28 N.	31. 9	N. 87. 4 E.	19. 7.44	18.48. 6	26.25	8.17.31.51
♂ 12.18.11. 9	23.30 S.	34.57	73. 6	22.43.46	8.52. 7 S.	22.29	12.18.22.52
♂ 15.20.14.38	35.21 N.	36.33	71.39	1.32.37	5.13. 1 N.	33.33	15.19.56.22
♄ 16.16. 8.17	72.23 N.	36.31	73. 5	2.19.10	8.54. 9	69.15	16.15.33.41
♄ 17.23. 9.59	43.45 N.	36.29	73.45	2.35.48	10. 7.23	42. 0	16.22.49.52
♄ 17.18.17.51	48. 5 N.	36.15	76. 5	3.21.32	13. 9. 6	46.41	17.17.58.42
♄ 18.14.20.12	32.27 N.	35.55	79. 7	4.10.11	15.45. 7	31.52	18.14. 9.58
♄ 18.15.34. 9	74.52 S.	35.53	79.20	4.13.11	15.53.24	73.34	18.15.57.20
♄ 18.16. 2.43	66. 7 S.	35.53	79.24	4.14.21	15.56.32	64.59	18.16.23. 3
♄ 18.20.53.41	17.37 N.	35.46	N. 80.14 E.	4.26.13	16.27.16	17.22	18.20.48.40
♄ 24.18. 3.45	46.30 S.	32.31	S. 75. 5 E.	9.59.23	12. 0.46	44.58	24.17.41.39
♄ 25. 5.38. 6	9.58 N.	32.16	73.53	10.23.55	10.20.18	9.35	25. 5.43.15
♄ 26. 5. 8.59	18.14 S.	31.47	72. 5	11.12.26	6.38.55 N.	17.21	26. 4.58.23
♄ 27.21.48. 4	20.58 N.	30.57	70.53	12.33. 7	0.10.24 S.	19.49	27.22. 1.23
♄ 31.14.51.39 *	43.34 N.	29.37	76.17	15.26. 6	13.29.34	42.19	31.15.12.34

Elements for computing the principal Lunar Occultations of the fixed Stars.

APRIL 1831.

Conjunction in A. R.	Diff. Dec.	H. M.	Orb. Ang.	A. R.	D's Declin.	Nearest Approach.	Time of Nearest Approach.
D. H. M. S.	/' "	/' "	° ' "	H. M. S.	° ' "	/' "	D. H. M. S.
ψ ♄ 1. 2. 16. 56	58.53 S.	29.35	S. 77.39 E.	15.48.45	14.45.53 S.	57.31	1. 1. 51. 24
φ Oph. 1. 18. 36. 20	6. 0 S.	29.33	S. 79.51 E.	16.21.29	16.20. 8	5.54	1. 18. 34. 11
δ f 5. 2. 8. 24	17.58 N.	30.35	N. 87. 2 E.	19. 7. 45	18.56.35	17.56	5. 2. 6. 35
λ m 9. 4. 31. 17	28. 1 S.	34.37	72.57	22.43.47	8.56.35	26.47	9. 4. 45. 31
φ m 9. 14. 14. 39	17.36 S.	35. 4	72.11	23. 5. 33	7.15. 4 S.	16.46	9. 14. 23. 52
2 ξ Ceti 13. 1. 39. 4	77. 8 N.	37.34	72.55	2.19.10	8.58.54 N.	73.44	13. 1. 2. 53
μ Ceti 13. 8. 28. 58	49.10' N.	37.35	73.37	2.35.47	10.12.47	47.10	13. 8. 6. 51
f 8 14. 3. 1. 15	55.12 N.	37.29	75.57	3.21.32	13.16.12	53.33	14. 2. 39. 48
γ 8 14. 23. 23. 14 *	40.57 N.	37.10	79. 0	4.10.10	15.53.37	40.11	14. 22. 10. 37
1 8 8 14. 23. 34. 39	66.16 S.	37. 9	79.12	4.13.11	16. 1.59	65. 5	14. 23. 54. 43
2 8 8 15. 0. 2. 15	57.29 S.	37. 8	79.17	4.14.21	16. 5.10	56.30	15. 0. 19. 32
α 8 15. 4. 43. 17 *	26.33 N.	37. 1	80. 8	4.26.13	16.36.12	26.10	15. 4. 35. 54
π II 17. 1. 8. 14	65.14 S.	35.36	N. 88.57 E.	6.18.55	19.13.21	65.13	17. 1. 10. 15
α Ω 20. 23. 36. 30	37.30 S.	32.18	S. 74.56 E.	9.59.23	12. 9.48	36.13	20. 23. 18. 23
ρ Ω 21.11.16.15	18.15 N.	31.59	73.44	10.23.55	10.28.36	17.31	21.11.28.51
σ Ω 22.11. 2. 21	11.47 S.	31.24	71.54	11.12.26	6.45.23 N.	11.13	22.10.55.21
1 γ m 24. 4.11.45	23.27 N.	30.39	70.43	12.33. 7	0. 7.55 S.	22. 8	24. 4. 26. 55
γ ♄ 27.21.45. 6	36.51 N.	29.39	76. 6	15.26. 7	13.36.18	35.46	27.22. 3. 1
ψ ♄ 28. 9. 9.59	66.38 S.	29.36	77.29	15.48.46	14.53.39	65. 2	28. 8. 40. 44
φ Oph. 29. 1. 28. 27	15. 7 S.	29.34	S. 79.41 E.	16.21.30	16.29.16	14.52	29. 1. 22. 58

Elements for computing the principal Lunar Occultations of the fixed Stars.
MAY 1831.

Conjunction in A. R.	Diff. Dec.	H. M.	Orb. Ang.	A. R.	J's Decln.	Nearest Approach.	Time of Nearest Approach.
D. H. M. S.	° ' "	° ' "	° ' "	H. M. S.	° ' "	° ' "	D. H. M. S.
<p> <i>d f</i> 2. 9.17.58 <i>λ m</i> 6.13.52.23 <i>φ m</i> 6.23.51.39 <i>γ *</i> 9.17. 0.25 <i>2 ξ Ceti</i> 10.12.27. 5 <i>μ Ceti</i> 10.19.14.46 <i>γ b</i> 12. 8.32.36 <i>1 δ b</i> 12. 9.42.19 <i>2 δ b</i> 12.10. 9.14 <i>α b</i> 12.14.43. 3 <i>γ Π</i> 14. 9.42.59 <i>α Ω</i> 18. 5.28.36 <i>ρ Ω</i> 18.16.58.43 <i>σ Ω</i> 19.16.33.37 <i>1 γ w</i> 21. 9.45.20 * <i>γ ε</i> 25. 3.50.18 <i>ψ ε</i> 25.15.16.36 <i>φ Oph.</i> 26. 7.35.24 <i>d f</i> 29.15.15.56 </p>	<p> <i>δ</i> 4.19 N. 40.15 S. 29. 5 S. 34.40 N. 76.44 N. 49.52 N. 47.20 N. 59.44 S. 50.53 S. 33.47 N. 53.11 S. 22.26 S. 32.58 N. 1.47 N. 33.37 N. 36.12 N. 68.42 S. 19. 5 S. 7.41 S. </p>	<p> 30.11 33.41 34.10 37. 9 37.46 37.53 38. 5 38. 5 38. 4 38. 1 36.50 32.48 32.21 31.33 30.31 29.36 29.35 29.35 30. 8 </p>	<p> N.87. 6 E. 73.50 72. 2 71.17 72.41 73.24 78.48 79. 0 79. 5 79.56 N.88.48 E. S.74.55 E. 73.41 71.48 70.32 75.52 77.15 S.79.28 E. N.87.15 E. </p>	<p> 19. 7.46 23.43.47 23. 5.33 1.32.38 2.19.10 2.35.48 4.10.10 4.13.11 4.14.21 4.26.13 6.18.55 9.59.22 10.23.55 11.12.26 12.33. 7 15.26. 7 15.48.46 16.21.30 19. 7.46 </p>	<p> 19.10.12 S. 9. 8.46 7.26.29 S. 5.12.24 N. 8.68.33 10.13.31 16. 0. 0 16.11.46 16.43.26 19.23.24 12.24.54 10.43.21 6.58.59 0. 2.16 N. 13.36.57 S. 14.55.42 16.33.14 19.22.11 </p>	<p> 4.19 38.28 27.40 39.50 73.16 47.47 46.25 58.38 49.58 33.16 53.10 21.40 31.39 1.42 31.41 35. 6 67. 1 18.46 7.41 </p>	<p> 2. 9.17.33 6.14.13.33 7. 0. 7.24 9.16.42.27 10.11.50.46 10.18.53.12 12. 8.18. 7 46.25 12.10. 0.15 12.10.24.24 12.14.33.44 14. 9.44.48 18. 5.17.55 18.17.15.54 19.16.34.41 21.10. 7.29 25. 4. 8.13 25.14.45.52 26. 7.28.19 29.15.16.40 </p>

Elements for computing the principal Lunar Occultations of the fixed Stars.

JUNE 1831.

Conjunction in A. R.	Diff. Dec.		H. M.	Orb. Ang.		A. R.	D's Declin.		Nearest Approach.	Time of Nearest Approach.
	D.	H. M. S.		°	'	H. M. S.	°	'		
☽	2. 21. 10. 5		32. 46	N. 72. 48 E.		22. 43. 48	9. 24. 40 S.		53. 43	2. 21. 40. 32
λ ♍	3. 7. 26. 32		33. 11	72. 0		23. 5. 34	7. 42. 7 S.		42. 36	3. 7. 51. 35
φ ♍	6. 2. 39. 53		36. 9	71. 5		1. 32. 38	5. 2. 13 N.		23. 7	6. 2. 26. 44
ν ♍	6. 22. 37. 5		36. 58	72. 28		2. 19. 10	8. 51. 6		66. 1	6. 22. 3. 14
2 ξ Ceti	7. 5. 33. 34		37. 11	73. 11		2. 35. 48	10. 7. 10		41. 37	7. 5. 13. 16
μ Ceti	7. 5. 33. 34		37. 44	75. 28		3. 21. 32	13. 16. 23		53. 34	7. 23. 48. 36
♌	8. 0. 10. 42		38. 2	78. 34		4. 10. 10	15. 59. 43		46. 5	8. 19. 2. 29
γ ♌	8. 19. 17. 12 *		38. 3	78. 46		4. 13. 11	16. 8. 25		58. 43	8. 20. 45. 26
δ ♌	8. 20. 27. 2		38. 3	78. 50		4. 14. 21	16. 11. 44		50. 1	8. 21. 9. 34
ε ♌	8. 20. 54. 1		38. 6	79. 41		4. 26. 13	16. 44. 10		33. 56	9. 1. 18. 8
α ♌	9. 1. 27. 52 *		37. 36	N. 88. 35 E.		6. 18. 55	19. 32. 30		46. 5	10. 19. 59. 31
ν ♏	10. 19. 57. 42		37. 13	S. 88. 28 E.		6. 54. 4	19. 31. 59		76. 34	11. 9. 11. 9
ξ ♏	11. 9. 14. 26		33. 45	74. 56		9. 59. 22	12. 40. 1		7. 5	14. 12. 55. 13
α ♏	14. 12. 58. 39		33. 13	73. 40		10. 23. 54	10. 58. 48		46. 26	15. 0. 33. 38
ρ ♏	15. 0. 9. 4		33. 12	71. 45		11. 12. 26	7. 14. 32		16. 26	15. 23. 19. 40
σ ♏	15. 23. 9. 34		30. 49	70. 26		12. 33. 7	0. 16. 27 N.		45. 1	17. 16. 15. 25
1 γ ♏	17. 15. 44. 16		29. 33	75. 40		15. 26. 7	13. 30. 46 S.		41. 3	21. 10. 7. 41
ψ ♏	21. 9. 46. 22 *		29. 33	77. 3		15. 48. 46	14. 50. 47		62. 10	21. 29. 45. 30
φ Ophi.	21. 21. 14. 33		29. 35	S. 79. 15 E.		16. 21. 30	16. 30. 12		15. 47	22. 13. 28. 57
δ ♏	22. 13. 35. 2		30. 19	N. 87. 26 E.		19. 27. 40	19. 27. 40		13. 12	25. 21. 0. 23
α ♏	25. 20. 59. 13		32. 23	72. 51		22. 43. 49	9. 37. 33		66. 7	30. 3. 25. 14
φ ♏	30. 13. 11. 58		32. 40	72. 0		23. 5. 35	7. 55. 18 S.		55. 14	30. 13. 44. 55

Elements for computing the principal Lunar Occultations of the fixed Stars.
JULY 1831.

Conjunction in A. R.	Diff. Dec.	H. M.	Orb. Ang.	A. R.	D's Declin.	Nearest Approach.	Time of Nearest Approach.
D. H. M. S.	' "	' "	° ' "	H. M. S.	° ' "	' "	D. H. M. S.
ν \times	12.22 N.	35. 0	N. 71. 0 E.	1.32.39	4.50.15 N.	11.42	3.10. 1.58
2 ξ Ceti	58.43 N.	35.45	72.22	2.19.11	8.40.41	55.57	4.13.42.13
μ Ceti	33.37 N.	35.59	73. 2	2.35.49	9.57.24	32. 9	5. 8.53.37
γ δ	47.23 N.	36.36	75.19	3.21.33	13. 8.29	45.50	6. 4.40.12
1 δ δ	41.21 N.	37. 5	78.24	4.10.11	15.54. 6	40.30	6. 6.26.13
2 δ δ	65.23 S.	37. 8	78.36	4.13.12	16. 2.56	64. 5	6. 6.50.53
α δ	56.24 S.	37. 8	78.41	4.14.21	16. 6.18	55.18	6.11. 5. 9
ν Π	29.33 N.	37.13	79.30	4.26.14	16.39.16	29. 4	8. 6.24. 8
α Ω	45.41 S.	37.25	N. 88.24 E.	6.18.55	19.32.56	45.39	11.22.12.27
ρ Ω	2. 2 N.	34.37	S. 75. 3 E.	9.59.22	12.49.24	1.58	12. 9.33. 5
σ Ω	58.26 N.	34. 6	73.47	10.23.54	11. 8.52	56. 7	13. 7.44.12
1 γ η	59.24 N.	33. 3	71.50	11.12.35	7.25.37	26.56	14.23.44.25
γ ϵ	2. 2 N.	31.25	70.22	12.33. 6	0.28. 7 N.	55.57	18.16.46. 3
ψ ϵ	50.35 N.	29.36	75.32	15.26. 7	13.22.32 S.	48.58	19. 3.22.58
ϕ Oph.	56.20 S.	29.34	76.56	15.48.46	14.43.19	54.52	19.20. 6.49
ϕ δ δ	9.41 S.	29.35	S. 79. 8 E.	16.21.30	16.23.49	9.31	23. 3.29. 9
λ μ	12.38 S.	30.31	N. 87.34 E.	19. 7.47	19.27. 6	12.37	27. 8.54.53
ϕ μ	75. 4 S.	32.37	72.55	22.43.50	9.43.21	71.45	27.19.10.49
ν \times	64.24 S.	32.50	72. 5	23. 5.36	8. 1.33 S.	61.16	30.15.49.13
2 ξ Ceti	4.53 N.	34.25	70.59	1.32.40	4.42.51 N.	4.37	31.20. 5. 9
μ Ceti	51.34 N.	34.54	72.19	2.19.12	8.33.35	49. 8	
	26.34 N.	35. 6	73. 0	2.35.50	9.50.25	25.25	

AUGUST 1831.

Conjunction in A. R.	Diff. Dec.	H. M.	Orb. Ang.	A. R.	D's Declin.	Nearest Approach.	Time of Nearest Approach.
D. H. M. S.	/ "	/ "	o /	H. M. S.	o / "	/ "	D. H. M. S.
☿ 1. 16. 6. 21 *	41. 3 N.	35. 32	N. 75. 17 E.	3. 21. 34	13. 2. 14 N.	39. 42	1. 15. 48. 44
♂ 2. 12. 24. 39	35. 53 N.	35. 56	78. 18	4. 10. 12	15. 48. 41	35. 9	2. 12. 12. 30
♂ 2. 13. 38. 40	70. 46 S.	35. 58	78. 31	4. 13. 12	15. 57. 36	69. 21	2. 14. 2. 10
♂ 2. 14. 7. 15	61. 45 S.	35. 58	78. 36	4. 14. 22	16. 1. 0	60. 32	2. 14. 27. 37
♂ 2. 18. 57. 20 *	24. 25 N.	36. 2	79. 26	4. 26. 14	16. 34. 10	24. 1	2. 18. 49. 53
♂ 4. 15. 25. 0	48. 16 S.	36. 29	N. 88. 19 E.	6. 18. 56	19. 30. 21	48. 15	4. 15. 27. 20
♂ 5. 5. 2. 21	76. 20 S.	36. 28	S. 88. 45 E.	6. 54. 5	19. 32. 15	76. 19	5. 4. 59. 37
♂ 8. 8. 4. 38	4. 22 N.	34. 52	75. 8	9. 59. 22	12. 51. 45	4. 13	8. 8. 6. 34
♂ 8. 18. 51. 24	61. 13 N.	34. 28	73. 51	10. 23. 54	11. 11. 39	58. 48	8. 19. 21. 2
♂ 9. 16. 56. 42	31. 55 N.	33. 35	71. 53	11. 12. 25	7. 29. 12	30. 20	9. 17. 14. 26
♂ 11. 7. 51. 39 *	63. 47 N.	32. 2	70. 27	12. 33. 6	0. 32. 31 N.	60. 6	11. 8. 31. 38
♂ 14. 23. 55. 55	54. 27 N.	29. 45	75. 31	15. 26. 6	13. 18. 40 S.	52. 43	15. 0. 23. 23
♂ 15. 11. 21. 50	52. 41 S.	29. 39	76. 53	15. 48. 45	14. 39. 39	51. 18	15. 10. 57. 38
♂ 16. 3. 42. 23	6. 25 S.	29. 35	S. 79. 8 E.	16. 21. 30	16. 20. 32	6. 18	16. 3. 39. 55
♂ 19. 11. 9. 37	11. 11 S.	30. 31	N. 87. 39 E.	19. 7. 47	19. 25. 39	11. 11	19. 11. 10. 31
♂ 23. 15. 2. 33	75. 8 S.	33. 9	72. 57	22. 43. 50	9. 43. 23	71. 50	23. 15. 42. 27
♂ 24. 1. 12. 9	64. 32 S.	33. 24	72. 4	23. 5. 36	8. 1. 39 S.	61. 24	24. 1. 47. 49
♂ 26. 21. 27. 21	4. 43 N.	34. 43	70. 59	1. 32. 40	4. 42. 44 N.	4. 27	26. 21. 24. 45
♂ 27. 18. 25. 9	51. 33 N.	34. 59	72. 20	2. 19. 13	8. 33. 39	49. 8	27. 17. 58. 18
♂ 28. 1. 46. 54	26. 40 N.	35. 3	72. 58	2. 35. 50	9. 50. 35	25. 30	28. 1. 33. 32
♂ 28. 21. 40. 9	41. 14 N.	35. 14	75. 16	3. 21. 35	13. 2. 28	39. 53	28. 21. 22. 18
♂ 29. 18. 13. 4 *	36. 12 N.	35. 22	78. 19	3. 40. 13	15. 49. 3	35. 27	29. 18. 0. 37
♂ 29. 19. 28. 16	70. 27 S.	35. 23	78. 31	4. 13. 13	15. 57. 57	69. 2	29. 19. 52. 4
♂ 29. 19. 57. 19	61. 27 S.	35. 23	78. 36	4. 14. 23	16. 1. 21	60. 13	29. 20. 17. 55
♂ 30. 0. 52. 20 *	24. 47 N.	35. 25	79. 25	4. 26. 15	16. 34. 35	24. 22	30. 0. 44. 37
♂ 31. 22. 23. 4	47. 46 S.	35. 30	N. 88. 18 E.	6. 18. 56	19. 30. 51	47. 45	31. 22. 25. 28

Elements for computing the principal Lunar Occultations of the fixed Stars.
SEPTEMBER 1881.

Conjunction in A. R.	Diff. Dec.	H. M.	Orb. Ang.	A. R.	☉'s Declin.	Nearest Approach.	Time of Nearest Approach.
D. H. M. S.	′ ″	′ ″	° ′	H. M. S.	° ′ ″	′ ″	D. H. M. S.
☿ 4. 17. 7.53	4. 3 N.	34.25	S. 75. 6 E.	9.59.22	12.51.24 N.	3.54	4.17. 9.43
♂ 5. 4. 1.58	60.41 N.	34. 9	73.49	10.23.54	11.11. 7	58.16	5. 4.31.41
♂ 7. 17. 2.47	61.48 N.	32.17	70.24	12.33. 6	0.50.39 N.	58.13	7.17.41.18
♂ 11. 8.14.30 *	50.37 N.	29.57	75.30	15.26. 6	13.22.28 S.	49. 0	11. 8.39.54
♂ 11.19.36.15	56.40 S.	29.48	76.52	15.48.45	14.43.37	55.11	11.19.10.20
♂ 12.11.53.18	10.31 S.	29.38	S. 79. 3 E.	16.21.30	16.24.37	10.19	12.11.49.15
♂ 15.19.41. 8	14.58 S.	30.15	N.87.35 E.	19. 7.47	19.29.26	14.57	15.19.42.23
♂ 19.23.44.30	75.27 S.	33.30	72.50	22.43.50	9.43.41	72. 6	20. 0.24.24
♂ 20. 9.47.21	64.16 S.	33.51	71.59	23. 5.36	8. 1.22 S.	61. 7	20.10.22.33
♂ 23. 4.41. 5	9.16 N.	35.35	70.54	1.32.41	4.47.20 N.	8.46	23. 4.36. 0
♂ 24. 1. 8.23	57.12 N.	35.50	72.14	2.19.13	8.39.20	54.29	24. 0.39. 9
♂ 24. 8.19.49	32.37 N.	35.53	72.55	2.35.51	9.56.35	31.11	24. 8. 3.47
♂ 25. 3.47.42	48. 3 N.	35.56	75.12	3.21.35	13. 9.19	46.27	25. 3.27.13
♂ 26. 0.0.21	43.36 N.	35.51	78.15	4.10.13	15.56.28	42.41	25.23.45.30
♂ 26. 1.14.33	63. 2 S.	35.51	78.28	4.13.14	16. 5.25	61.44	26. 1.35.37
♂ 26. 1.43.12	54. 1 S.	35.50	78.33	4.14.24	16. 8.50	52.56	26. 1. 1.10
♂ 26. 6.34.41	32.16 N.	35.48	79.24	4.26.16	16.42. 6	31.43	26. 6.24.44
♂ 28. 3.57.43	40. 8 S.	35.16	N.88.20 E.	6.18.57	19.38.29	40. 7	28. 3.59.42
♂ 28.18. 4.56	68.29 S.	35. 3	S.88.43 E.	6.54. 6	19.40. 5	68.28	28.18. 2.18

OCTOBER 1831.

Conjunction in A. R.	Diff. Dec.	H. M.	Orb. Ang.	A. R.	☉'s Declin.	Nearest Approach.	Time of Nearest Approach.
D. H. M. S.	° ' "	° ' "	° ' "	H. M. S.	° ' "	° ' "	D. H. M. S.
☉ 2. 0. 17. 18	7. 54 N.	33. 41	S. 74. 57 E.	9. 59. 22	12. 55. 14 N.	7. 38	2. 0. 20. 58
♈ 2. 11. 25. 23	63. 46 N.	33. 28	73. 40	10. 23. 55	11. 14. 10	61. 11	2. 11. 57. 32
♈ 3. 10. 3. 56	32. 13 N.	32. 59	71. 41	11. 12. 26	7. 29. 27 N.	30. 34	3. 10. 22. 21
♈ 8. 16. 27. 56	41. 50 N.	30. 7	75. 24	15. 26. 6	13. 31. 15 S.	40. 28	8. 16. 48. 57
♈ 9. 3. 46. 11	66. 1 S.	29. 56	76. 46	15. 48. 45	14. 52. 57	64. 16	9. 3. 15. 55
♈ 9. 19. 59. 4	20. 36 S.	29. 43	78. 59	16. 21. 29	16. 34. 42	20. 13	9. 19. 51. 8
♈ 11. 22. 17. 55	68. 17 N.	29. 34	S. 87. 9 E.	18. 5. 10	19. 37. 43	68. 12	11. 22. 24. 48
♈ 13. 4. 4. 17	26. 29 S.	29. 52	N. 87. 43 E.	19. 7. 46	19. 40. 58	26. 28	13. 4. 6. 24
♈ 17. 19. 41. 18	70. 9 S.	33. 41	71. 50	23. 5. 36	8. 7. 16 S.	66. 40	17. 20. 20. 15
♈ 20. 14. 11. 51	11. 33 N.	36. 19	70. 40	1. 32. 41	4. 49. 38 N.	10. 54	20. 14. 5. 32
♈ 21. 10. 12. 24 *	62. 7 N.	36. 47	72. 2	2. 19. 14	8. 44. 16	59. 6	21. 9. 41. 9
♈ 21. 17. 12. 38 *	38. 28 N.	36. 54	72. 44	2. 35. 51	10. 2. 27	36. 44	21. 16. 54. 5
♈ 22. 12. 6. 51 *	56. 5 N.	37. 5	75. 1	3. 21. 36	13. 17. 23	54. 11	22. 11. 43. 24
♈ 23. 7. 41. 15 *	53. 36 N.	37. 1	78. 7	4. 10. 14	16. 6. 30	52. 27	23. 7. 23. 22
♈ 23. 8. 53. 5	52. 55 S.	37. 1	78. 20	4. 13. 15	16. 15. 33	51. 50	23. 9. 10. 26
♈ 23. 9. 20. 50	43. 52 S.	37. 0	78. 24	4. 14. 25	16. 19. 0	42. 58	23. 9. 35. 8
♈ 23. 14. 2. 57 *	42. 53 N.	36. 58	79. 15	4. 26. 17	16. 52. 44	42. 7	23. 13. 49. 58
♈ 25. 10. 7. 16	26. 55 S.	36. 5	N. 88. 16 E.	6. 18. 58	19. 51. 42	26. 55	25. 10. 8. 37
♈ 25. 23. 56. 5	54. 51 S.	35. 42	S. 88. 44 E.	6. 54. 7	19. 53. 42	54. 50	25. 23. 54. 3
♈ 27. 16. 58. 45	69. 40 S.	34. 26	80. 31	8. 35. 6	17. 36. 22	68. 43	27. 16. 38. 45
♈ 29. 5. 47. 46	19. 44 N.	33. 22	74. 51	9. 59. 23	13. 7. 0	19. 3	29. 5. 57. 2
♈ 29. 17. 3. 9	74. 46 N.	33. 3	73. 33	10. 23. 55	11. 25. 6	71. 42	29. 17. 41. 34
♈ 30. 16. 1. 14 *	41. 11 N.	32. 29	71. 31	11. 12. 26	7. 38. 22 N.	39. 3	30. 16. 25. 21

Elements for computing the principal Lunar Occultations of the fixed Stars.
NOVEMBER 1831.

Conjunction in A. R.	Diff. Dec.	H. M.	Orb. Ang.	A. R.	☉'s Declin.	Nearest Approach.	Time of Nearest Approach.
D. H. M. S.	′ ″	′ ″	° ′	H. M. S.	° ′ ″	′ ″	D. H. M. S.
☉ 1 γ ♍ 1. 7. 56. 55	64. 6 N.	31. 37	S. 70. 2 E.	12. 33. 6	0. 32. 47 N.	60. 15	1. 8. 38. 28
☉ 2 μ ♋ 4. 23. 48. 6	35. 16 N.	30. 8	75. 10	15. 26. 6	13. 37. 49 S.	34. 4	5. 0. 6. 4
☉ 3 φ Oph. 6. 3. 17. 40	30. 6 S.	29. 46	78. 46	16. 21. 29	16. 44. 12	29. 31	6. 3. 5. 53
☉ 4 δ ♏ 8. 5. 32. 7 *	54. 45 N.	29. 30	S. 87. 1 E.	18. 5. 9	19. 51. 15	54. 40	8. 5. 37. 54
☉ 5 ε ♏ 9. 11. 25. 11	41. 37 S.	29. 37	N. 87. 39 E.	19. 7. 46	19. 56. 7	41. 35	9. 11. 28. 39
☉ 6 ζ ♏ 11. 15. 18. 56	63. 4 N.	30. 31	78. 56	20. 56. 28	16. 50. 39 S.	61. 53	11. 14. 55. 10
☉ 7 η ♏ 17. 0. 58. 0	6. 5 N.	36. 8	70. 25	1. 32. 41	4. 44. 9 N.	5. 44	17. 0. 54. 37
☉ 8 θ ♏ 17. 21. 0. 45	60. 1 N.	36. 58	71. 48	2. 19. 14	8. 42. 10	57. 1	17. 20. 30. 20
☉ 9 ι ♏ 18. 3. 58. 59	37. 36 N.	37. 12	72. 28	2. 35. 52	10. 1. 34	35. 51	18. 3. 40. 43
☉ 10 κ ♏ 18. 22. 40. 20	58. 27 N.	37. 42	74. 46	3. 21. 36	13. 19. 45	56. 24	18. 22. 15. 53
☉ 11 λ ♏ 19. 17. 50. 37	59. 10 N.	37. 58	77. 53	4. 10. 14	16. 12. 4	57. 51	19. 17. 31. 0
☉ 12 μ ♏ 19. 19. 0. 41	47. 12 S.	37. 59	78. 6	4. 13. 15	16. 21. 16	46. 11	19. 19. 16. 4
☉ 13 ν ♏ 19. 19. 27. 44	38. 3 S.	37. 59	78. 10	4. 14. 25	16. 24. 49	37. 15	19. 19. 40. 4
☉ 14 ξ ♏ 20. 0. 2. 28	49. 25 N.	38. 2	79. 0	4. 36. 17	16. 59. 16	48. 30	19. 23. 47. 36
☉ 15 π ♏ 21. 18. 38. 20	14. 41 S.	37. 26	N. 88. 6 E.	6. 18. 59	20. 3. 55	14. 40	21. 18. 39. 6
☉ 16 ρ ♏ 22. 7. 55. 53	41. 17 S.	37. 3	S. 88. 53 E.	6. 54. 8	20. 7. 15	41. 16	22. 7. 54. 35
☉ 17 σ ♏ 23. 23. 31. 40	53. 22 S.	35. 29	80. 33	8. 35. 7	17. 52. 36	52. 39	23. 23. 16. 50
☉ 18 τ ♏ 25. 11. 25. 56 *	36. 33 N.	33. 56	74. 48	9. 59. 24	13. 23. 44	35. 15	25. 11. 42. 53
☉ 19 υ ♏ 26. 21. 16. 31	56. 48 N.	32. 37	71. 25	11. 12. 27	7. 53. 54 N.	53. 50	26. 21. 49. 49

Elements for computing the principal Lunar Occultations of the fixed Stars.

DECEMBER 1831.

Conjunction in A.R.	Diff. Dec.	H. M.	Orb. Ang.	A.R.	☉'s Declin.	Nearest Approach.	Time of Nearest Approach.
D. H. M. S.	° ' "	° ' "	° ' "	H. M. S.	° ' "	° ' "	D. H. M. S.
☿ ♄ 2. 5. 59. 27	36. 24 N.	29. 56	S. 74. 56 E.	15. 26. 6	13. 36. 43 S.	35. 8	2. 6. 18. 25
1 ♀ ♀ 5. 11. 5. 53	67. 1 N.	29. 34	86. 41	18. 3. 40	19. 58. 27	66. 54	5. 11. 13. 45
2 ♀ ♀ 5. 11. 48. 20	46. 22 N.	29. 34	S. 86. 48 E.	18. 5. 9	19. 59. 38	46. 18	5. 11. 53. 35
♂ ♀ 6. 13. 48. 5	65. 53 N.	29. 37	N. 88. 30 E.	18. 59. 43	20. 10. 39	65. 51	6. 13. 44. 36
♂ ♀ 6. 17. 37. 4	52. 51 S.	29. 37	87. 49	19. 7. 45	20. 7. 21	52. 48	6. 17. 41. 9
♂ ♀ 8. 21. 42. 3	48. 3 N.	30. 11	79. 2	20. 56. 27	17. 5. 42 S.	47. 10	8. 21. 23. 54
♂ ♀ 14. 10. 54. 40	5. 43 S.	35. 2	70. 15	1. 32. 41	4. 32. 19 N.	5. 23	14. 10. 57. 59
2 ♄ Ceti 15. 7. 33. 38 *	50. 51 N.	36. 3	71. 36	2. 19. 14	8. 32. 58	48. 15	15. 7. 6. 58
♂ ♀ 15. 14. 42. 33 *	29. 25 N.	36. 23	72. 15	2. 35. 52	9. 53. 23	28. 2	15. 14. 27. 45
♂ ♀ 16. 9. 46. 10 *	53. 9 N.	37. 12	74. 33	3. 21. 36	13. 14. 26	51. 13	16. 9. 23. 20
♂ ♀ 17. 5. 8. 0 *	56. 59 N.	37. 50	77. 40	4. 10. 15	16. 9. 53	55. 40	17. 4. 48. 41
1 ♄ ♀ 17. 6. 18. 22	49. 11 S.	37. 52	77. 51	4. 13. 15	16. 19. 17	48. 5	17. 6. 34. 45
2 ♄ ♀ 17. 6. 45. 31	39. 58 S.	37. 53	77. 56	4. 14. 25	16. 22. 54	39. 4	17. 6. 58. 44
♂ ♀ 17. 11. 20. 54 *	48. 12 N.	38. 1	78. 46	4. 26. 18	16. 58. 3	47. 17	17. 11. 6. 5
♂ ♀ 19. 5. 28. 24	9. 23 S.	38. 17	N. 87. 53 E.	6. 18. 59	20. 9. 12	9. 23	19. 5. 28. 56
♂ ♀ 19. 18. 25. 48	34. 10 S.	38. 4	S. 89. 5 E.	6. 54. 9	20. 14. 20	34. 10	19. 18. 24. 56
♂ ♀ 21. 8. 40. 51	41. 50 S.	36. 49	80. 43	8. 35. 8	18. 4. 5	41. 17	21. 8. 29. 51
♂ ♀ 22. 19. 12. 39 *	50. 36 N.	35. 12	74. 54	9. 59. 25	13. 37. 42	48. 50	22. 19. 35. 6
♂ ♀ 24. 3. 55. 51	71. 47 N.	33. 34	71. 25	11. 12. 28	8. 8. 48 N.	68. 2	24. 4. 36. 44
♂ ♀ 29. 11. 38. 27	43. 44 N.	29. 49	74. 44	15. 26. 6	13. 29. 25 S.	42. 12	29. 12. 1. 37
♂ Ophi. 30. 15. 24. 55	28. 1 S.	29. 36	78. 21	16. 21. 30	16. 42. 10	27. 26	30. 15. 13. 27



RULES

FOR COMPUTING

AN OBSERVED OCCULTATION.

Dr. YOUNG'S Method.

I.—OBSERVE, if possible the difference of apparent altitudes at the time of immersion or emersion; or at least the altitude of the moon, the altitude of the star being computed from the true latitude of the place.

Example:—Supposing the immersion of β \approx to be observed at Greenwich, the 5th of Jan. 1824, at $3^h.46^m.50^s$, the moon's altitude, corrected for refraction, being $29^\circ.15'.37''$: we have for the declination of the star, $8^\circ.39'.17''$, that of the moon being $7^\circ.47'.12''$ at the observed time, and the difference of declination, from the elements in the Nautical Almanac, $55'.31''$: the moon's right ascension, $22^h.7^m.2^s$, that of the star being $22^h.7^m.32^s$: the sun's right ascension, $19^h.2^m.19^s$; the star's, less the sun's, $3^h.5^m.13^s$, which, deducted from $3^h.46^m.50^s$, gives $41^m.37^s$ for the star's horary angle. With these elements we proceed to compute the altitude of the star.

*'s Log. rising.....	41'. 37''	.....	3. 21594
Log. cos. declination..	8°. 39'. 17''	.....	9. 99503
cos. Lat.	51°. 28'. 40''	.....	9. 79436
			3. 00533
n. n.....	1012	.....	3. 00533

N. S.....	49800	Mer. A.....	$\overset{\circ}{29}. \overset{'}{52}. \overset{''}{3}$
N. S.....	48788	Alt. *.....	29. 12. 5
		Obs. Alt. D...	29. 15. 37
		Difference	3. 32
		D's Par. in Alt.	47. 9
		Diff. tr. Alt....	50. 41

II.—Having found the difference of the true altitudes from the difference of the apparent altitudes combined with the parallax of the moon, add together the squares of the semidiameter, properly augmented, and of the difference of the true altitudes, and subtract the square of the difference of the apparent altitudes, the remainder being the square of the true distance.

<i>Example:</i> —The semid....	14'. 54"	= 894,	sq....	799236
Diff. true alt. .	50. 41	= 3041,		9247681
Diff. app. alt. .	3. 32	= 212,	A. C.	99955056
True dist.				52. 42,6 = 3162.6 10001973

III.—From the difference of declination at the conjunction, reduced in the ratio of the radius to the sine and cosine of the orbital angle, we obtain the nearest distance of the star from the orbit, and the distance of the nearest point of the orbit from the point of conjunction in right ascension; or, in the *Nautical Almanac* for 1827, and the succeeding years, we find these arcs already computed. The square of the nearest distance, subtracted from that of the true distance, gives the square of the orbital distance from the point of nearest approach, which converted into time from the moon's hourly motion, and applied to the time of the nearest approach, shows the true time of the immersion for the meridian of Greenwich.

<i>Example:</i> —Nearest distance...	50'. 31"	= 3031"	sq.	9186961
True distance.....			sq.	10001973
Dist. from n. point				15'. 2", 8 = 902.8 sq. 815012

Now the hourly motion being 29'. 42", the distance 15'. 2", 8 becomes equivalent to 30^m. 24^s, and the time of nearest approach being 3^h. 17^m. 1^s, the time of immersion at Greenwich becomes 3^h. 47^m. 25^s, instead of 3^h. 46^m. 50^s as supposed; and the error of observation, or of computation, would be 35^s of time.

Mr. HENDERSON's Improvement on Dr. YOUNG's Method.

When neither of the altitudes has been observed, the computation of that of the moon is liable to considerable uncertainty, as depending upon the supposed longitude by account: and Mr. THOMAS HENDERSON, of Edinburgh, has remarked, that the method proposed by Dr. YOUNG does not exhibit so rapid a tendency to con-

verge to the true longitude as would be desirable. He has therefore proposed to substitute the reduction of the parallax to the moon's orbit, as employed by Dr. YOUNG in the calculation of a predicted occultation, and as explained in the following Rules:

I.—Compute the altitude of the star for the time of observation, and from the reduced or geocentric latitude of the place, as shown, in the Nautical Almanac for 1826, Add. P. 1; and find the parallactic angle P^*Z , the sine of which is equal to the secant of the altitude multiplied by the cosine of the reduced latitude, and by the sine of the horary angle; this angle having the sign + before the star has passed the meridian, and — afterwards. The complement to 90° of the moon's orbital angle $P \gg p'$ is to have the sign —, when the moon's nearest approach to the star and the orbital angle have the same denomination N. or S., and + when they are of different denominations. The sum of these two angles is the complement of the parallactic orbital angle $Z \gg p'$, or the complementary angle, with its proper sign.

Example:—At Port Bowen, in latitude $73^\circ. 13'. 40''$ N., the 3d January, 1825, the immersion of γ Geminorum was observed at $6^h. 9^m. 17^s$ apparent time: the nearest approach being $50'. 42''$, at $3^d. 13^h. 8^m. 3^s$, the reduced latitude $73^\circ. 7'. 28''$, the sun's right ascension in time $18^h. 58^m. 21^s$, the proportional logarithm of the moon's equatorial horizontal parallax 0.4848, and the moon's semi-diameter $16'. 4''$.

The apparent time of observation ($6^h. 9^m. 17^s$) added to the \odot 's R. A. ($18^h. 58^m. 21^s$) gives the right ascension of the unknown meridian ($1^h. 7^m. 38^s$), which being subtracted from the star's right ascension ($6^h. 4^m. 22^s$), leaves the star's horary angle ($4^h. 56^m. 44^s = 74^\circ. 11'. 0''$) east of the Meridian.

	h	m	s	
*'s log. rising.	4. 56. 44			4. 86180
	o	'	"	
Log. cos. *'s declin. 22. 32. 56 N.	9. 96546			
sin. red. co-lat. 16. 52. 32 N.	9. 46284			
			4. 29010	n. n. 19503
N. S. mer. alt. 39. 25. 28				63506
*'s alt. 26. 6. 21				44003
Log. sec. *'s alt. ...	0. 04673	Orb. A.	$84^\circ. 25'$	S. E., \gg N.
sin. red. co-lat. 9. 46284		Compl. ... +	5. 35	
sin. H. A.	9. 98324	Par. A. ... +	18. 7*	E. of Mer.
sin. Par. A. $18^\circ. 7'$	9. 49281	C. P. O. A. +	23. 42	

Remark 1.—The parallactic angle must always be reckoned from that pole of the equator, which is either north or south, accordingly as the nearest approach is marked N. or S. in the Elements of the Occultation; and therefore, when this pole is of a contrary denomination to that of the latitude of the place, the parallactic angle is to be taken obtuse, or equal to the supplement of the angle found by the above rule. But when the latitude is less than the star's declination, and of the same denomination, an ambiguity may arise, respecting the magnitude of the parallactic angle, in proceeding by the rule above. This ambiguity may be removed by resolving, according to the common rules of spherical trigonometry, the triangle $P*Z$, formed by the reduced zenith, the star, and the proper pole of the equator.

2.—It may sometimes happen that the complementary angle exceeds 180° : in this case its supplement to 360° , with the sign reversed, is to be used.

II.—Add together the proportional logarithm of the moon's reduced horizontal parallax, the logarithmic secant of the star's altitude, and the logarithmic cosecant of the complementary angle; the sum will be the proportional logarithm of the orbital parallax, which must have the same sign as the complementary angle. To this logarithm add the logarithmic tangent of the complementary angle; the sum will be the proportional logarithm of the perpendicular parallax, which must have the contrary sign to that of the moon's nearest approach, when the complementary angle is less than 90° , and the same sign when it is greater; considering + as belonging to the moon's distance, when she is N. of the star, and — when S.

Example:—As the latitude is between 71° and 79° , the correction for ellipticity is 13 to be added to 0.4848, whence the P. L. of the moon's parallax becomes 0.4861. (See Add. N. A. 1826, p. 4.)

P. L. red. H. P.	0.4861
Log. sec. Alt.	0.0467
cosec. compl. Ang.	0.3958

P. L.	+ 21'. 13"	O. P.	0.9286
Log. tan. compl. Ang.			9.6424

P. L.	— 48'. 20"	P. P.	0.5710 (D N.)
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III.—The sum of the moon's nearest approach and the perpendicular parallax may be considered as one of the sides, and the moon's semidiameter, without augmentation, as the hypotenuse, of a right-angled plane triangle, of which the other side is to be ascertained: it will have the sign + in the case of an immersion, and — in that of an emersion. The sum of this quantity and the orbital parallax being reduced to time, by means of the moon's horary motion, and then applied to the time of observation by addition or

subtraction, accordingly as it bears the sign + or —, will give the time of the nearest approach, reckoned according to the meridian of the place of observation, which being compared with the time of the same phenomenon for Greenwich, as given in the Ephemeris, the longitude of the place from Greenwich will be obtained.

Example:—

Nearest approach.....	+ 50. 42
Perpendicular Par.....	— 48. 20

Sum.....	+ 2. 22
Semidiameter.....	16. 4

Sum.....	18. 26	P.L... .9897
Difference.....	13. 42	P.L... 1.1186

2) 2.1083

Side.....	+ 15. 53,7	P.L... 1.0541 (Im.)
Orbital Par.....	+ 21. 13	

Sum.....	+ 37. 6,7	P.L... .6858
A. C. prop. log. H. M. . .	35. 20	..... 9.2929
Constant log. ....		.4771

P.L. of interval.....	+ 1. 3. 1	4558
Time of observation.....	6. 9. 17	

Time of nearest approach.. 7. 12. 18 at Port Bowen.

Time of nearest approach.. 13. 8. 3 at Greenwich.

Longitude of Port Bowen.. 5. 55. 45 West of Greenwich.

Mr. HENDERSON'S Second Method.

(See Quarterly Journal, July 1827.)

I.—FIND half the sum and half the difference of the north polar distance of the zenith (corrected on account of the spheroidal figure of the earth), and the north polar distance of the star; and to the logarithmic cosecant of the half sum add the log. sine of the half difference, and the log. cotangent of half the star's horary angle; the sum is the log. tangent of an angle A, always less than 90°: and to the log. secant of the half sum add the log. cosine of the half difference, and the log. cotangent of half the horary angle, the sum is the log. tangent of an angle B, which is greater or less than 90°, accordingly as the half sum is greater or less than 90°. If the north polar distance of the zenith be greater than the north

polar distance of the star, the sum of A and B, otherwise their difference, is an angle C, to which prefix the sign + when the star is east of the meridian, and - when west. When the orbital angle has N. prefixed, its complement to 90° will have the sign -, and + when S. The sum of this complement and of the angle C (observing the algebraical rule of the signs as in addition) is the complement of the parallactic orbital angle, or the complementary angle with its proper sign. When this angle exceeds 180° , its supplement to 360° , with the sign reversed, is to be taken.

Example:—At Port Bowen, on 3d January, 1825, the immersion of γ Geminorum was observed at $6^h. 9^m. 17^s$ apparent time.

	^h _h ^m _m ^s _s	^o _o ['] _' ["] _"
Apparent time...	6. 9. 17	Latitude 73. 13. 40 N.
Sun's A. R.	18. 58. 21	Reduction - 6. 12
Sidereal time...	1. 7. 38	73. 7. 28 N.
Star's A. R.	6. 4. 22	Zen. N. P. D. 16. 52. 32
		Star's N. P. D. 67. 27. 4
Horary angle...	4. 56. 44	Sum 84. 19. 36
	$= 74. 11. 0$	Difference... 50. 34. 32
Half.....	$= 37. 5. 30$	Half sum ... 42. 9. 48
		Half diff. ... 25. 17. 16
Log. cosec. half sum	0.17312	Log. secant. . 0.13004
.... sine half difference....	9.63060	.... cosine. . 9.95625
.... cot. half hor. ang.	0.12144	.... cot. 0.12144
.... tang. A = $\overset{0}{40} \overset{'}{5} \overset{''}{15}$	9.92516	L. tan. B = $\overset{0}{58} \overset{'}{12} \overset{''}{30}$ 0.20773
B = 58. 12. 30		
C = +18. 7. 15	(star east of meridian.)	
Comp. orb. ang. = + 5. 35. 0	(orbital angle S.)	
Compl. angle = +23. 42. 15		

II. Add together the log. cosecant of the horary angle, the log. cosecant of the north polar distance of the zenith, the log. sine of the angle C, the log. secant of the complementary angle, and the proportional logarithm of the moon's horizontal parallax, corrected for the spheroidal figure of the earth; the sum is the proportional log. of the perpendicular parallax, which has the sign + or -, accordingly as the complementary angle is greater or less than 90° . To the prop. log. of the perpendicular parallax add the log. cotangent of the complementary angle, the arithmetical complement of the prop. log. of the moon's horary motion, and the constant log. 0.4771, the sum is the prop. log. of a portion of time, which, added to or subtracted from the time of observation, accordingly as the parallactic angle (or its supplement, in the case mentioned above) has the sign + or -, gives the time corrected.

Example:—

Log. cosec. hor. angle	0.0168	
. N. P. D. of Zenith	0.5371	
. sine C.	9.4928	
. secant comp ^y angle	0.0383	
Prop. log. reduced hor. par.	0.4861	
. perpendicular parallax = $-48'.20''$	0.5711	
Log. cotang. comp ^y ang.	0.3575	
A. C. Prop. log. $35'.20''$ H. M.	9.2929	
Constant log.	0.4771	
<hr/>		
Prop. log. + 0.36. 2		0.6986
Time of observation	6. 9. 17	
Time corrected	6. 45. 19	

III. The nearest approach will have the sign + or —, accordingly as the difference of declination at the conjunction is marked N. or S. The sum of the nearest approach and perpendicular parallax is the star's distance from the apparent orbit, which add to and subtract from the moon's horizontal semidiameter without augmentation. To half the prop. log. of the sum add half the prop. log. of the difference, the arithmetical complement of the prop. log. of the moon's horary motion, and the constant log. 0.4771, the sum is the prop. log. of another portion of time, which, added to or subtracted from the time corrected, accordingly as an immersion or emersion has been observed, gives the time of the nearest approach for the meridian of the place of observation; which being compared with the Greenwich time set down in the Elements, the difference of longitude is obtained.

Remark.—In some rare cases, when the star's distance from the apparent orbit is nearly equal to the semidiameter, the portion of time will have to be applied in a contrary manner to that here directed. This will happen when the immersion takes place after, or the emersion before, the apparent conjunction.

Example:—

Nearest approach	+ 50.42	
Perpendicular parallax	— 48.20	
	+ 2.22	
Semidiameter	16. 4	
Sum	18. 26	Half P. L. 0.4948
Difference	13. 42	0.5593
	A. C. Prop. log. H. M. 9.2929	
	Constant log.	0.4771
<hr/>		
Prop. log. + 0.26. 59		0.8241
Time corrected	6. 45. 19	
Time of nearest approach	7. 12. 18	
Ditto for Greenwich	13. 8. 3	
Longitude of Port Bowen	5. 55. 45	West of Greenwich.

Table for finding the reduced, or geocentric Latitude.

True Lat.	Correct.	True Lat.	Correct.
0° 90°	0	23° 67°	8 5
1 89	24	24 66	8 21
2 88	47	25 65	8 36
3 87	1 10	26 64	8 52
4 86	1 34	27 63	9 5
5 85	1 57	28 62	9 19
6 84	2 20	29 61	9 31
7 83	2 43	30 60	9 44
8 82	3 6	31 59	9 55
9 81	3 28	32 58	10 6
10 80	3 51	33 57	10 16
11 79	4 12	34 56	10 25
12 78	4 34	35 55	10 33
13 77	4 55	36 54	10 41
14 76	5 16	37 53	10 48
15 75	5 37	38 52	10 54
16 74	5 57	39 51	10 59
17 73	6 17	40 50	11 4
18 72	6 36	41 49	11 7
19 71	6 55	42 48	11 10
20 70	7 13	43 47	11 12
21 69	7 31	44 46	11 13
22 68	7 48	45	11 14

The correction is to be subtracted from the true latitude, whether it be north or south.

Example:—The latitude of Greenwich being $51^{\circ}.28'.40''$, the correction is $10'.57''$, and the reduced latitude $51^{\circ}.17'.43''$ N.

Table for correcting the Proportional Logarithm of the Moon's Equatorial Horizontal Parallax.

Lat.	0	11	19	25	30	34	39	43	47	51	56	60	65	71	79	90
Add	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	

The correction is to be added to the proportional logarithm of the moon's parallax to four places of decimals.

Example:—Greenwich being between 51° and 56° of latitude, the correction for its parallel is 9 to be added; and the prop. log. for 1 March, 1827, at noon, being 0.5110, the corrected P. L. is 0.5119.

AN
EASY METHOD
OF
CORRECTING
THE LUNAR DISTANCE,
ON ACCOUNT OF
THE SPHEROIDAL FIGURE OF THE EARTH.

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1828.

AN EASY METHOD
OF
CORRECTING THE LUNAR DISTANCE,
&c.

RULE.

FROM the equatorial horizontal parallax deduce the horizontal parallax for the given latitude, and use it instead of the former in the process for *clearing the lunar distance*.*

Take from Part II. of the subjoined Table *P* the equation corresponding to the latitude, and to the azimuth of each object, if it is observed,† or, if not, to the *sum of the logarithms* taken from Part I., as directed below; apply the equation to the apparent altitude of the object with the sign annexed to the column in which the azimuth, or the *sum of the logarithms*, is found, and call the result the *prepared altitude*, which is to be used in the subsequent process instead of the apparent altitude.

Take from Part III. the corrections corresponding to each of these equations, and the *prepared altitude* of the object; add or subtract them in the case of the Sun (or Star) to or from the Moon's *prepared altitude* and the corresponding logarithm, according as the equation was additive or subtractive; and do the same in the case of the Moon with the correction of the logarithm, but the reverse with that of the prepared altitude. The resulting *true distance* will be corrected for the spheroidal figure of the earth.

If the azimuth of either object is not observed, add together the logarithmic secants (taken from Part I.) of the apparent altitude of this

* See the Rules for solving Problems XVI. and XVII. in Mr. LAX's Book, published by the authority and at the expense of the Board of Longitude, with the following title, "Tables to be used with the Nautical Almanac for finding the Latitude and Longitude at Sea, with easy and accurate Methods of performing the Computations required for these purposes, by the Rev. W. LAX, &c."

† The azimuth must always be reckoned from the quadrant of the meridian cutting the equator, and will be sufficiently exact if it is observed within 6° or 8° .

itude, and the logarithmic cosines of the half-sum of
 altitude, and the distance of the same object from
 and of the difference between the half-sum and
 and rejecting ten from the index of the sum, use
 the argument in Part II.

N. B. The ellipticity of the earth is supposed to be $\frac{1}{300}$.

EXAMPLE I.

January 27, 1826, about 9^h. 43^m, in latitude 48° S., and longitude by account
 5° 17' E., the apparent altitude of Pollux was 11° 50'. 57", that of the Moon's centre
 12° 1'. 9"; the azimuth of the star from the north about 17°, that of the Moon about 82°,
 and the apparent distance of the star from the Moon's centre 63°. 12'. 5": required the
 true distance, taking into the account the spheroidal figure of the earth.

	° ' "		° ' "		° ' "
11. 50. 57		☉'s app. alt. . .	9. 7. 9	Equat. par. . . .	59. 19
+ 10. 52		Equ. Table P. . .	+ 1. 24	Reduction	— 7
12. 1. 49		☉'s prep. alt. .	9. 8. 33	Reduced par. . .	59. 12
— 9. 8. 33					
alt. 4. 22					
52. 29		Logarithm. . . .	9. 99894		
Pts. for alt. . . .	4	Pts. for alt. . . .	0		
Pts. for par. . . .	12	Pts. for par. . .	17		
		N° for *	25		
Corr. Table P, * +	4	Corr. Tab. P, * +	2		
— ☉ —	1	☉ +	0		
Sum.	10. 5. 43				
App. dist.	63. 12. 5	Ver.	549122		
			28		
Diff. prep. alts. .	2. 53. 16	Suv.	1998720		
			9		
		Logarithm. . . .	5. 738622	N°	547873
			60		
		Logarithm. . . .	5. 737675	N°	546605
Diff. true alts. .	1. 56. 6	Ver.	570		
			1		
True Distance. .	63. 4. 30	Ver.	547176		

N. B. The correction for the spheroidal figure is, in this instance, —12".

* The declinations of the Sun and Moon may be taken at once from the Nautical Almanac for the noon or midnight at Greenwich, nearest the given time; and that of a star from the Nautical Almanac, or Table VI. in Mr. Lax's Book, without reduction.

EXAMPLE II.

, 1826, about $22^{\circ}.29'$, in latitude 53° N., and longitude by account $22^{\circ}.50'$ W., the apparent altitude of the Sun's centre was $31^{\circ}.33'.40''$, that of the Moon's $13^{\circ}.10'.50''$; the azimuth of the Sun from the south about 27° , that of the Moon not being observed; and the apparent distance between their centres $74^{\circ}.53'.13''$: required the true distance, taking into the account the spheroidal figure of the earth.

....	$31.33.40$	☉'s app. alt.	$13.10.50$	Equat. par.	54.35	☉'s app. alt.	13.11	L. sec.	0.03
P ..	+ 9.45	Equ. Table P	— 3.37	Reduction	— 7	Latitude ..	53.0		0.28
t. ..	$31.43.25$	☉'s prep. alt.	$13.7.13$	Red. par.	54.28	☉'s pol. dist.	68.31		
— ..	$13.7.13$					Sum	134.42		
r. alt.	1.25	Logarithm..	9.998581			Half-sum ..	67.21	L. cos.	9.54
ude	48.35	Pts. for alt. .	4			Difference..	1.10		10.04
....	27	Pts. for par..	16			Sum of logs.....			9.8
		N° for ☉...	18						
☉, ☉ +	1	Corr. Tab. P, ☉ +	1						
— ☉ +	1	☉ —	1						
....	$13.57.43$								
st...	$74.53.13$	.....		Ver....	739215				
					61				
lts..	$18.36.12$	.....		Suv....	1947676				
					74				
		Logarithm..	5.836957	N°.....	687026				
			16						
		Logarithm..	5.835592	N°.....	684845				
lts...	$17.45.42$	.....		Ver....	47606				
					61				
ce ..	$74.29.6$	.....		Ver....	732511				

N.B. The correction for the spheroidal figure, in this instance, is $-8''$.

REMARK.

corrections in Part III. may always be neglected when the altitude exceeds 30° , for they never can make a difference in the lunar distance of more than $\frac{1}{4}''$.

TABLE P.

For Correcting the Lunar Distance, on Account of the spheroidal Figure of the Earth.

PART I.

Secants and L. Cosines.

Log. Sec.	Log. Cos.	°	Log. Sec.	Log. Cos.
0 0.00	10.00	75.27	0.60	9.40
15 01	9.99	47	61	39
15 02	98	76.7	62	38
3 03	97	27	63	37
13 04	96	45	64	36
58 05	95	77.4	65	35
26 06	94	77.22	66	34
0 07	93	39	67	33
43 08	92	56	68	32
38 09	91	78.13	69	31
24 10	90	29	70	30
5 11	89	45	71	29
40 12	9.88	79.1	0.72	9.28
9 13	87	16	72	27
35 14	86	31	74	26
56 15	85	45	75	25
13 16	84	80.0	76	24
28 17	83	13	77	23
39 18	82	80.27	78	22
47 19	81	40	79	21
53 20	80	53	80	20
56 21	79	81.5	81	19
57 22	78	18	82	18
56 23	77	30	83	17
52 24	76	51.41	0.84	9.16
47 25	75	53	85	15
40 26	74	82.4	86	14
31 27	73	15	87	13
21 28	72	25	88	12
9 29	71	3e	89	11
55 30	70	82.46	0.90	9.10
40 31	69	56	91	09
24 32	68	83.6	92	08
7 33	67	15	93	07
48 34	66	24	94	06
28 35	65	33	95	05
7 36	64	53.42	0.96	9.04
45 37	63	51	97	03
22 38	62	59	98	02
58 39	61	84.8	99	01
32 40	60	16	1.00	00
6 41	59	24	01	8.99
39 42	58	84.31	1.02	8.98
11 43	57	39	03	97
43 44	56	46	04	96
13 45	55	53	05	95
0 46	54	85.0	0.06	9.1
51 47	53	7	07	93
52 48	52	35.14	1.08	8.92
53 49	51	20	09	91
54 50	50	27	10	90
55 51	49	33	11	89
52 52	48	39	12	88
53 53	47	45	13	87
0 54	46	85.51	1.14	8.86
51 55	45	56	15	85
52 56	44	86.0	21	79
53 57	43	87.0	36	64
54 58	42	88.0	60	40
55 59	41	89.0	2.00	00

PART II.

Equations to be applied to the Apparent Altitudes.

Azimuth.	Sum Logs.	LATITUDE.														Sum Logs.
+	+	0°	3°	6°	9°	12°	15°	18°	22°	26°	30°	35°	-			
0 0	0.00	0.35	1.45	2.54	4.05	5.46	6.71	7.11	8.18	9.16	10.7	10.52	9.99			
18 12	8.40	33	39	45	3.48	4.49	5.47	6.48	7.52	8.47	9.35	10.18	98			
25 51	79	31	34	36	36	33	28	26	27	19	4	9.45	97			
31 47	87	30	29	27	23	17	9	3	17.50	8.33	11	95				
36 52	9.00	28	23	18	11	2	4.51	5.42	6.36	22	2	8.38	94			
41 25	9.10	0.26	1.18	2.9	2.59	3.46	4.32	5.20	6.10	6.53	7.31	8.4	9.93			
45 34	18	24	12	0	46	30	13	4.58	5.44	25	0	7.31	92			
49 27	24	22	7	1.52	34	15	3.54	36	19	5.56	6.29	6.58	90			
53 8	30	21	2	43	22	0	36	14	4.54	28	5.58	25	89			
56 37	35	19	0.56	34	9	2.44	17	3.52	28	4.59	27	5.51	88			
60 0	9.40	0.17	0.51	1.25	1.57	2.28	2.58	3.30	4.2	4.37	4.45	5.18	9.86			
63 15	44	15	46	16	45	13	39	7	3.37	2	24	4.44	85			
66 25	48	13	40	7	32	1.57	21	2.45	11	3.34	3.53	11	83			
69 31	51	12	35	0.58	20	41	2	24	2.46	5	22	3.37	81			
72 32	54	10	29	40	8	26	1.43	1	20	2.27	2.51	4	80			
75 31	9.57	0.8	0.24	0.40	0.55	1.10	1.24	1.39	1.55	2	2.20	2.30	9.78			
78 23	60	6	19	31	43	0.54	6	17	29	1.40	1.49	1.57	76			
81 22	63	4	13	22	31	39	0.46	0.55	4	10	18	24	74			
84 15	65	3	8	13	18	23	28	33	0.38	0.43	0.46	0.50	72			
87 8	68	1	3	4	6	8	9	11	13	14	16	17	70			
Azimuth.	Sum Logs.	90°	87°	84°	81°	78°	75°	72°	68°	64°	60°	55°	Sum Logs.			
+	+	LATITUDE.												-		

PART III.

Corrections to be applied to the Moon's prepared Altitude according to the corresponding Logarithm.

App. Alt.	EQUATIONS FROM PART II.													
	0'	1'	2'	3'	4'	5'	6'	7'	8'	9'	10'	11'	12'	13'
3.0	2	0	5	1	8	1	11	1	14	2	17	2	20	2
4.0	1	0	4	1	7	1	9	1	12	2	15	2	18	2
5.0	1	0	4	1	6	1	8	1	11	2	13	2	16	2
6.0	1	0	3	0	5	1	8	1	10	2	12	2	14	2
7.0	1	0	3	1	5	1	7	1	9	2	11	2	13	2
8.0	1	0	3	1	4	1	6	1	8	2	10	2	11	2
9.0	1	0	2	0	4	1	5	1	7	1	9	2	10	2
10.0	1	0	2	0	3	1	5	1	6	1	8	2	9	2
11.0	1	0	2	0	3	1	5	1	6	1	7	1	8	2
12.0	1	0	2	0	3	1	5	1	6	1	7	1	8	2
13.0	1	0	2	0	3	1	5	1	6	1	7	1	8	2
14.0	1	0	2	0	3	1	5	1	6	1	7	1	8	2
15.0	1	0	2	0	3	1	5	1	6	1	7	1	8	2
16.0	1	0	2	0	3	1	5	1	6	1	7	1	8	2
17.0	1	0	2	0	3	1	5	1	6	1	7	1	8	2
18.0	1	0	2	0	3	1	5	1	6	1	7	1	8	2
19.0	1	0	2	0	3	1	5	1	6	1	7	1	8	2
20.0	1	0	2	0	3	1	5	1	6	1	7	1	8	2
21.0	1	0	2	0	3	1	5	1	6	1	7	1	8	2
22.0	1	0	2	0	3	1	5	1	6	1	7	1	8	2
23.0	1	0	2	0	3	1	5	1	6	1	7	1	8	2
24.0	1	0	2	0	3	1	5	1	6	1	7	1	8	2
25.0	1	0	2	0	3	1	5	1	6	1	7	1	8	2
26.0	1	0	2	0	3	1	5	1	6	1	7	1	8	2
27.0	1	0	2	0	3	1	5	1	6	1	7	1	8	2
28.0	1	0	2	0	3	1	5	1	6	1	7	1	8	2
29.0	1	0	2	0	3	1	5	1	6	1	7	1	8	2
30.0	1	0	2	0	3	1	5	1	6	1	7	1	8	2

PART III.

Corrections to be applied to the Moon's prepared Altitude at corresponding Logarithm.

App. Alt.		EQUATIONS FROM PART II.										
		0'	1'	2'	3'	4'	5'	6'	7'	8'	9'	10'
0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0	0	0	0
25	0	0	0	0	0	0	0	0	0	0	0	0
26	0	0	0	0	0	0	0	0	0	0	0	0
27	0	0	0	0	0	0	0	0	0	0	0	0
28	0	0	0	0	0	0	0	0	0	0	0	0
29	0	0	0	0	0	0	0	0	0	0	0	0
30	0	0	0	0	0	0	0	0	0	0	0	0

When the quantities with which the numbers are to be taken from this Table are not found in the a

SUPPLEMENT
TO THE
NAUTICAL ALMANAC,
FOR THE YEAR
1830.

PUBLISHED BY ORDER OF
THE BOARD OF ADMIRALTY.

London:
PRINTED BY T. BENSLEY, CRANE COURT, FLEET STREET;
AND
SOLD BY JOHN MURRAY, ALBEMARLE STREET.

1830.

Price 2s.

ADVERTISEMENT.

THE Tables, contained in the following pages, are chiefly intended to facilitate the computation of time; the determination of longitudes by lunar observations, especially by the method of stars culminating with the moon; and the reduction of the observed to the mean places of the stars; to which are also annexed the values of the horizontal parallax and the logarithmic distance of each of the principal planets, which the practical astronomer requires for the reduction of his observations, and which the navigator may have occasion to employ in the determination of his longitude by their observed distances from the moon, should that method be found sufficiently exact to be relied on.

The third column of the first page of each month shows the time which ought to be marked by a mean solar clock at Greenwich, at the instant of the sun's centre passing the meridian, or, as it is called, of apparent noon; and therefore serves to set a mean clock or watch by the sun's transit, or by a dial, directly. It corresponds in fact to the column headed "Equation of Time" in the Nautical Almanac; but the values are all rendered positive by subtracting the negative ones from 24^h, and thus destroying any possibility of mistake from change of sign or error of its application by the observer. For places out of the meridian of Greenwich, the numbers of this column require to be corrected by a proportional part of their daily difference, according to the longitude. The amount of this correction for each hour of longitude is given, and is to be *added* or *subtracted*, according to the direction at the head of the column. For Example: required the mean time of the sun's transit on 24th February, 1830, at a place 5^h West of Greenwich. Since noon in West longitude happens *later* than at Greenwich, the horary correction must be taken out between the 24th and 25th, and therefore its value is 0^s.39; and as it occurs *below* the line of division of the column where the precept changes, the lower heading — must be used, indicating that the correction 5 × 0.39 is to be applied negatively, or subtracted, so that the time required is 0^h. 13^m. 34^s.0 — 1^s.95 = 0^h. 13^m. 32^s.1. — A mistake in taking out the horary correction for the day elapsed, instead of that to come, it is to be observed, may occasionally produce an error of nearly four-tenths of a second in the result.

The fourth column in the 1st page of each month furnishes the value of δ , in the well-known formulæ $x = \delta \cdot \tan. D \frac{T}{1440 \tan. 7\frac{1}{2} T} - \delta \cdot \tan. L \frac{T}{1440 \sin. 7\frac{1}{2} T}$ where x represents the correction in seconds of time to be applied to the mean of the two observed times of equal altitude of the sun to obtain the time of its meridional passage. D = the declination, at the time of passage on the day of observation, + if North, — if South. T = the number *hours and decimals* elapsed between the observation of equal altitudes. L = the latitude of the place of observation, + if North, — if South.

Column six in the first page of each month, entitled the sidereal time mean noon on the meridian of Greenwich, is that which ought to be shown by the sidereal clock of the Royal Observatory, on each day, at the instant that a clock regulated to mean solar time shows exactly $0^h. 0^m. 0^s$. The use of this column is to facilitate the reduction of sidereal to mean solar time and *vice versa*, by the help of the table commonly used for that purpose called a Table of Acceleration of Sidereal on Mean Solar Time, and the corresponding Table of Retardation of Mean on Sidereal Time, according to the following Rule:—Convert the interval from the mean noon immediately preceding, from the denomination given to that required; and mean time be required, the result will at once be that which the clock should show; but if sidereal time be that sought, the result must be added to sidereal time shown in the column in question for the preceding noon.

Example.—To convert $21^h. 10^m. 0^s$ sidereal time, Jan. 1, 1830, into mean time, for the meridian of Greenwich.

	<i>h</i>	<i>m</i>	<i>s</i>
Sidereal time given.....	21	10	0
Sidereal time at mean noon, January 1.....	18	42	30, 95
Interval in sidereal time.....	2	27	29, 05
Retardation of mean on sidereal time for the interval.....		—	24, 16
Mean time required.....	2	27	4, 89

Which is the interval elapsed since mean noon, expressed in mean time and therefore the time which ought to be shown by a mean time clock.

Vice versa, to convert $2^h. 27^m. 4^s, 89$ mean time, January 1, 1828, into sidereal time for the same meridian.

	<i>h</i>	<i>m</i>	<i>s</i>
Mean interval from mean noon, January 1.....	2	27.4	,89
Acceleration of sidereal on mean time for the interval...		+	24,16
			<hr/> 2.27.29,05
Sidereal time at mean noon, January 1.....	18	42.30	,95
			<hr/> 18.42.30,95
Sidereal time required	21	10	0.00

Which ought to be the reading-off of the sidereal clock at the instant in question.

If the place of observation be not on the meridian of Greenwich, sidereal time, set down in column six, must be corrected by the addition of $9^s, 8565$ for each hour (and proportional parts for the minutes and seconds of Longitude, if the place be to the West of Greenwich, but by its subtraction if to the East. Thus, in $9^h. 10^m. 6^s$ of West longitude, the sidereal at mean noon, January 1, instead of being, as in the foregoing Example $18^h. 42^m. 30^s, 95$ must be corrected by $+ 1^m. 30^s, 37$, giving $18^h. 44^m. 1^s$ for the time to be used, instead of that set down in the column.

The sidereal time here intended is that in common use among astronomers, and expresses the actual hour-angle from the meridian, westward of the true equinoctial point at the moment of observation, and calculated by the formula,

$$\text{Sid. T.} = \frac{\odot\text{'s mean long.} - 16''.5. \sin. \text{ } \text{J's } \Omega - 0''.917. \sin. 2 \odot\text{'s true long.}}{15}$$

It is therefore affected by the equation of the equinoxes; and is not, strictly speaking, a *mean* or uniformly increasing quantity. It ought, therefore, to be termed *apparent sidereal time* in the same manner as apparent solar time reckons from the actual arrival of the sun's centre on the meridian; and in like manner, as mean solar time is reckoned from the arrival of an imaginary sun, moving uniformly with its mean velocity, so *mean sidereal time* (whose expression would be simply $\frac{\odot\text{'s mean longitude}}{15}$) would be reckoned from the transit of (not the *true*, but) the *mean* equinoctial point. The smallness of the fluctuations to which a clock, regulated to *apparent* sidereal time compared with one regulated to mean sidereal time, is subject, being at the utmost only $2^s.3$ in a period of nineteen years, has prevented the practical inconvenience of this from being felt—no clock being sufficiently perfect to go during so long a period without frequent re-adjusting; and as the corrections applied by astronomers to the observed right ascensions of all objects are adapted to this supposed irregularity in the rate of the clock, the mean right ascensions thence deduced come out correct. It has, therefore, not been thought necessary in this instance to depart from received usage, however theoretically objectionable such a mode of counting time may appear, since a change in this respect would involve the necessity of a corresponding change in all tables of nutation. The conversion of solar into sidereal time, and *vice versa*, is thus performed without reference to the "equation of time," with which it has in fact nothing to do, and whose employment in the hands of less practised computers often leads to mistakes.

Column seven is headed "Mean Equinoctial Time." It contains the values of the fraction $\frac{\odot\text{'s mean longitude at mean noon,}}{\odot\text{'s mean daily motion in longitude;}}$ the longitude being reckoned from the place of the *mean* vernal equinox, corrected by the very minute secular equation of the equinoxes, and the mean effect of precession being included in the mean daily motion. Or, which comes to the same thing, it gives the time elapsed since the instant of the mean vernal equinox, in mean solar days and fractions of a day.

The unit of equinoctial time is the *mean* equinoctial year, or the average of all the times elapsing from the sun's quitting the mean vernal equinox (that is, the equinox corrected by the equation of the equinoxes) and returning to it again, during a whole period of the revolution of the apsides of the earth's orbit, as referred to the moveable equinox, or 20984 years. It is assumed, in these computations, that this year is equal to 365.242264 mean solar days, and may be regarded as divided into 365 equal and one smaller part; or, if preferred, into decimals of its whole magnitude, or any other way that convenience may dictate.

The fraction at the head of the column expresses the part of a day, which is to be supposed to be annexed to each line of the column of days to express the equinoctial time at mean noon at Greenwich on the civil day corresponding. Thus, at mean Greenwich noon on the 5th Jan. 1830, the equinoctial time is $288^d.714242$; or, which is the same thing, $0^y.790473257$ from the *mean* time of the vernal equinox for 1829; and on the 30th March, 1830, it will be $7^d.11^h.19^m.38^s.9$, or $7^d.471978$. These fractions are readily converted into each other by the assistance of a Table, p. 34.

The use of the column of equinoctial time is to afford a uniform date, which shall be independent of the difference of meridians, and of all inequalities in the sun's motion, and shall thus save the necessity, when speaking of the time of any event's happening, of mentioning at the same time the place where it was observed or computed. Thus, it is the same thing to say, that a comet passed its perihelion on the 5th Jan. 1830, at $5^h.47^m.0^s.1$ mean time at Greenwich, at $5^h.56^m.21^s.6$ mean time at Paris, or at $1829^y.288^d.22^h.55^m.30^s.6$ equinoctial time; but the former dates make the localities of Greenwich and Paris enter as elements of the expression, whereas the latter expresses the interval elapsed since an epoch common to all the world, and identifiable independently in all localities. By these means, all ambiguities in the reckoning of time are avoided. Thus, at the antipodes of Greenwich, could any one suddenly transport himself thither from Greenwich, at noon, on the 1st Jan. 1830, he would on his arrival call his time midnight, December 31, 1829, had he travelled westwards; or, January 1, 1830, if eastwards; while the actual date, according to either reckoning, if reduced to equinoctial time, would be one and the same, viz. $1829^y.284^d.17^h.8^m.30^s.5$.

To find the equinoctial time corresponding to any proposed instant of mean solar time at any given place by this column, reduce into time the longitude of the place reckoned East or West from Greenwich, and it will be: equinoctial time = equinoctial time at mean noon at Greenwich on the same day, civil reckoning, + mean time at the place, \mp longitude of the place $\left\{ \begin{array}{l} - \text{if East.} \\ + \text{if West.} \end{array} \right\}$

Thus for $5^h.56^m.21^s.6$ mean time at Paris, January 5, 1830, the longitude of Paris from Greenwich being $9^m.21^s.5$ E. we have equinoctial time = $1829^y.288^d.17^h.8^m.30^s.5 + 5^h.56^m.21^s.6 - 9^m.21^s.5 = 1829^y.288^d.22^h.55^m.30^s.6$.

The mean instant of the vernal equinox, in the sense in which it is here understood, or point of departure, or epoch of equinoctial time, being marked by no phenomenon, and being only discoverable by calculation, it becomes necessary to state what is here meant by it, in order that we may know how far the epoch now assumed is to be regarded as arbitrary. Delambre's Solar Tables having been employed in all the computations relative to the solar theory in the Nautical Almanac and the present Supplementary Tables, are assumed as the basis of calculation; and his mean longitudes, at the commencement of each year, deduced, by calculations sufficiently intricate and laborious, from a comparison of an immense multitude of observations, are assumed as correct. Nearly so they undoubtedly are: but as it is impossible they should be perfectly so, their error (which can only be a constant quantity) must be admitted as the very small *arbitrary constant*, by which the epoch of equinoctial time used differs from the real instant of the *mean* vernal equinox in the year 0 (A. D.). This constant is at present unknown, nor can it ever be precisely determined; neither is it of any consequence that it should be so, if we only resolve to adhere to it, and make all future determinations of equinoctial time date from the same epoch, whatever improvements future researches may introduce into the solar tables, or at least not to change it but on mature deliberation, and by general consent.

All attempts to agree upon and introduce among astronomers a fixed first meridian have failed, from the want of any point on the earth's surface sufficiently prominent to command all suffrages. The system of equinoctial

time is equivalent to the establishment of what may be termed an itinerant first meridian, which remains constant during one whole year, and then shifts its place, per saltum, on the globe, by 0,242264 of a circumference $= 5^h. 48^m. 51^s. 6$ to the eastward; and thus, in the lapse of ages, corresponds, at some time or other, to any proposed meridian. In the interval between the vernal equinoxes of 1829 and 1830 (or in the equinoctial year 1829+) this meridian corresponded to the longitude $17^h. 8^m. 30^s. 5$ West, or $6^h. 51^m. 29^s. 5$ East of Greenwich; and in 1830+ (E. T.) it will correspond to $11^h. 19^m. 38^s. 9$ W.

Equinoctial time may be reckoned backwards as well as forwards to any extent, provided due attention be bestowed on the secular variation of precession, which, increasing nearly as the square of the time, although extremely minute at first, becomes at length sensible; and which, as its laws and its period are at present unknown, must be regarded as affecting the *mean* equinox in the form of a correction: when we speak, therefore, of the *mean* equinox, we must be understood, in a limited sense, as referring to that element, divested by computation of the periodical inequalities arising from solar and lunar nutation; and, moreover, of the yet more considerable inequality arising from the motion of the earth's perigee; of which more presently.

Equinoctial dates antecedent to the Christian era may be set down in two ways:—Thus, to denote that an event happened $180^d. 5^h$ before the mean time of the vernal equinox, immediately antecedent to that of year A. D. 0, we may write its date either $-1^v. -180^d. 5^h$ E. T., thus reckoning the days backwards, and inverting their order of succession in the calendar; or we may preserve the same order, by writing it $-2^v. +185^d. 0^h. 48^m. 51^s. 6$ E.T. The Gregorian calendar being founded on the mean tropical year, the instant of the *mean* vernal equinox will always fall on the same day of the month of March, within one unit more or less, arising from the redundant or deficient portions of a day, produced by the incommensurability of the day and the year. The same would be the case with the moment of the true arrival of the sun at the equinox, were it not for the progressive motion of the earth's perigee, which combined with the retrograde motion of the equinoctial points, in the period of 20984 years, brings the equinox alternately to coincide with the swiftest and slowest points of its elliptic motion. The true equinoxes in this long period, therefore, succeed each other at unequal intervals, and the extent of fluctuation thereby caused in the place of the true equinox in the calendar amounts to an interval equal to that in which the sun would describe an arc of $3^{\circ}. 50'. 53''$, 6 (twice the equation of the centre) with its mean motion, that is to say, about four days. In the application of equinoctial time therefore to chronological reckoning, in which the intervals bear already some sensible proportion to the vast period above mentioned, this fluctuation must be borne in mind, and must be allowed for whenever the actual arrival of the sun at the equinox is under consideration. The same distinction in fact between mean and apparent time holds good in the equinoctial, as well as in the solar and sidereal reckoning, but on a more extended scale. If we date from the true instant of the equinox, we reckon by apparent; if from the mean, where all the known periodical fluctuations are allowed for, by mean time. With a view to the conversion of mean into apparent equinoctial time, the Table, p. viii. has been computed.

The remaining columns of these Tables stand in need of little expla-

nation. The column containing the sidereal interval, in which the Moon's semidiameter passes the meridian, affords data for the reduction of observations of stars culminating with the moon, as well as for comparisons in right ascension of the moon with other stars, such as those of the Greenwich Catalogue, which may be occasionally resorted to as means of determining longitudes; while the columns, containing the right ascension and declination at the time of transit, enable the British observer to set his transit instrument beforehand to the place of the moon, nearly enough for the purpose of observation.

The columns devoted to the corrections of the stars' places contain the logarithms of two ephemerical quantities C and D, by whose aid, when used in conjunction with the other elements, stated in the Preface to the "New Tables for facilitating the computation of Precession, Aberration, and Nutation, of 2881 Principal Fixed Stars," published by the Astronomical Society of London, any observation of the stars of that collection may be immediately reduced.

NOTE.—Mr. POISSON makes the tropical year = $365^d, 242219 - i^0, 000006655$, i being the number of centuries *after* 1750; if we employ this value, the date in Page vii will stand $27 + 185^d, 0^h, 48^m, 58^s, 7$ E. T.

TABLE

For Finding the Time of the True Equinoxes, within Half an Hour, for the last Year of each Century.

DATE.	☉ enters Υ before Mean Equinox.	☉ enters \triangle after Mean Equinox.	DATE.	☉ enters Υ before Mean Equinox.	☉ enters \triangle after Mean Equinox.
—800	1 ^d .71	1 ^d .68	+600	1 ^d .98	1 ^d .97
700	1. 74	1. 71	700	1. 98	1. 97
600	1. 77	1. 74	800	1. 98	1. 98
			900	1. 99	1. 98
500	1. 79	1. 77	1000	1. 99	1. 98
400	1. 82	1. 80	1100	1. 98	1. 98
300	1. 84	1. 82	1200	1. 98	1. 98
200	1. 87	1. 85	1300	1. 98	1. 98
—100	1. 89	1. 87	1400	1. 97	1. 97
0	1. 90	1. 89	1500	1. 96	1. 96
+100	1. 92	1. 90	1600	1. 95	1. 95
200	1. 94	1. 92	1700	1. 94	1. 94
300	1. 95	1. 93	1800	1. 92	1. 93
400	1. 96	1. 95	1900	1. 91	1. 92
			2000	1. 89	1. 90
500	1. 97	1. 96			

FORMULAS AND TABLES EMPLOYED.

1.—The mean time of apparent noon is taken from the equation of time in the Nautical Almanac.

2.—Double the sun's daily variation in declination is equal to the sun's motion in declination from the preceding to the following noon.

3.—The sidereal interval of the sun's semidiameter passing the meridian has been calculated from BESSEL's Tables.

4.—The sidereal time is computed from DELAMBRE's Tables, by reducing into time the sun's mean longitude, increased by $5^{\circ}.9$, as determined from the Greenwich Observations by Professor AIRY; and then diminished by $16^{\circ}.5 \sin \odot$'s \odot , and by $0^{\circ}.917 \sin 2 \odot$'s longitude.

5.—The fraction of equinoctial time is computed from the equinoctial time in the Supplement to the Nautical Almanac for 1828, subtracting $0^d.242264$ for each year.

6.—The sun's semidiameter has been calculated from BESSEL's Tables.

7.—The moon's right ascension and declination have been computed from the Nautical Almanac.

8.—The time required for the passage of the moon's semidiameter over the meridian has been computed from the Nautical Almanac, with due regard to her motion in right ascension.

9.—The logarithms subservient to the correction of the places of the stars are derived from the method of Professor BESSEL, as arranged by Mr. BAILY, in a paper published by the Astronomical Society. The correction of the right ascension is $\Delta \alpha = a A + b B + c C + d D$; and that of the declination $\Delta \delta = a' A + b' B + c' C + d' D$; in which

$$A = -18^{\circ}.677 \cos \odot.$$

$$B = -20^{\circ}.360 \sin \odot.$$

$$C = t - 0.025 \sin 2 \odot - 0.344 \sin \odot + 0.004 \sin 2 \odot.$$

$$D = -0^{\circ}.545 \cos 2 \odot - 9^{\circ}.250 \cos \odot + 0^{\circ}.090 \cos 2 \odot.$$

$$a = + \cos \alpha. \sec \delta. \qquad a' = \tan \omega. \cos \delta. - \sin \alpha. \sin \delta.$$

$$b = + \sin \alpha. \sec \delta. \qquad b' = \cos \alpha. \sin \delta.$$

$$c = + 46^{\circ}.021 + 20^{\circ}.043 \sin \alpha. \tan \delta. \qquad c' = 20^{\circ}.043 \cos \alpha.$$

$$d = + \cos \alpha. \tan \delta. \qquad d' = - \sin \alpha.$$

\odot , the sun's true longitude; \odot , the mean longitude of the moon's node; t , the fraction of a year, elapsed from the instant at which the sun's mean longitude was 281° ; and ω , the mean obliquity of the ecliptic. The catalogue of the Astronomical Society contains a, b, c, d , and a', b', c', d' , for each star; and Mr. BAILY has given tables of A and B , adapted, for the greater facility of the computation, to a particular hour of each day, which differs somewhat in different years: for 1830 it is 9 hours, 4 minutes after noon. The logarithm of C and D are here exhibited for the same instant, calculated agreeably to the directions given in the introduction to the catalogue.

10.—The parallaxes and logarithmic distances of the planets are computed with the assistance of Professor SCHUMACHER's Tables, and of the Nautical Almanac: the earth's semidiameter, or the sun's horizontal parallax, as seen from the sun's mean distance from the earth, being $8^{\circ}.66$.

11.—The lunar stars are the same as selected for the Jahrbuch of 1830

JANUARY 1830.

Days of the Month.		Astronomical Week Days.		At Greenwich Apparent Noon.				At Greenwich Mean Noon.				Days of the Year.	
				Mean Time.	Hourly Dif- ference +	Double the Sun's daily Var. in Declin. +	The Sun's Semidiameter passing the Meridian in Sidereal Time.	Sidereal Time.	Mean Equinoctial Time, adding + 0 ^h . 714242.	The Sun's Semi- diameter.			
		h m s	s	"	m s	h m s	Days.	' "					
1	☉	0. 3. 50, 4	1, 18	587	1. 11, 05	18. 42. 30, 95	284	16. 17, 77					
2	☿	4. 18, 7	1, 16	642	11, 01	46. 27, 50	285	17, 76					
3	☌	0. 4. 46, 6	1, 15	697	1. 10, 96	18. 50. 24, 06	286	16. 17, 75					
4	☊	5. 14, 1	1, 13	751	10, 90	54. 20, 62	287	17, 74					
5	☋	5. 41, 2	1, 11	805	10, 84	58. 17, 17	288	17, 72					
6	☌	6. 7, 8	1, 09	859	10, 78	19. 2. 13, 73	289	17, 69					
7	☍	6. 34, 0	1, 07	912	10, 72	6. 10, 29	290	17, 66					
8	☎	6. 59, 6	1, 05	964	10, 65	10. 6, 84	291	17, 63					
9	☏	7. 24, 7	1, 03	1017	10, 57	14. 3, 40	292	17, 59					
10	☐	0. 7. 49, 3	1, 00	1069	1. 10, 50	19. 17. 59, 96	293	16. 17, 54					
11	☑	8. 13, 3	0, 98	1119	10, 42	21. 56, 51	294	17, 48					
12	☒	8. 36, 7	0, 95	1170	10, 34	25. 53, 07	295	17, 42					
13	☓	8. 59, 5	0, 93	1221	10, 25	29. 49, 62	296	17, 36					
14	☔	9. 21, 7	0, 90	1270	10, 16	33. 46, 18	297	17, 30					
15	☕	9. 43, 3	0, 87	1319	10, 07	37. 42, 73	298	17, 23					
16	☖	10. 4, 2	0, 84	1367	9, 98	41. 39, 29	299	17, 15					
17	☗	0. 10. 24, 4	0, 81	1415	1. 9, 88	19. 45. 35, 84	300	16. 17, 06					
18	☘	10. 43, 9	0, 78	1463	9, 78	49. 32, 40	301	16, 97					
19	☙	11. 2, 7	0, 75	1509	9, 68	53. 28, 95	302	16, 88					
20	☚	11. 20, 8	0, 72	1554	9, 58	57. 25, 51	303	16, 78					
21	☛	11. 38, 2	0, 69	1599	9, 47	20. 1. 22, 07	304	16, 68					
22	☜	11. 54, 8	0, 66	1644	9, 36	5. 18, 62	305	16, 58					
23	☝	12. 10, 6	0, 63	1688	9, 26	9. 15, 18	306	16, 47					
24	☞	0. 12. 25, 6	0, 60	1731	1. 9, 15	20. 13. 11, 73	307	16. 16, 36					
25	☟	12. 39, 9	0, 56	1773	9, 03	17. 8, 29	308	16, 24					
26	☠	12. 53, 4	0, 53	1814	8, 92	21. 4, 84	309	16, 12					
27	☡	13. 6, 0	0, 49	1854	8, 81	25. 1, 40	310	15, 99					
28	☢	13. 17, 8	0, 46	1894	8, 69	28. 57, 95	311	15, 85					
29	☣	13. 28, 8	0, 42	1932	8, 58	32. 54, 51	312	15, 71					
30	☤	13. 38, 9	0, 39	1970	8, 46	36. 51, 06	313	15, 57					
31	☥	0. 13. 48, 2	0, 36	2008	1. 8, 35	20. 40. 47, 62	314	16. 15, 42					

JANUARY 1830.

Days of the Month.	THE MOON'S			Relative to the Corrections of the Stars' Places.		THE PLANETS'		
	Right Asc.	Declin.	Semidiameter	At 9 ^h . 4 ^m , or + 0 ^d . 378;		Days.	Horiz. Paralax.	Log. Dist. from the Earth
	at the Time of her Transit.	at the Time of her Transit.	passing the Meridian in Sidereal Time.	LOGARITHM OF				
	h m	° '	m s	C	D	♂ MERCURY.		
1	0. 24	+ 1. 16	1. 7, 04	-8. 5283	+0. 9896	1	6, 15	0. 1489
2	1. 20	5. 48	7, 28	8. 4844	0. 9892	7	6, 38	0. 1328
3	2. 16	9. 57	1. 7, 83	-8. 4360	+0. 9887	13	6, 77	0. 1068
4	3. 13	13. 31	8, 47	8. 3817	0. 9883	19	7, 44	0. 0662
5	4. 12	16. 14	9, 00	8. 3197	0. 9878	25	8, 51	0. 0075
6	5. 12	17. 55	9, 17	8. 2480	0. 9873	31	10, 16	9. 9305
7	6. 11	18. 28	8, 77	8. 1626	0. 9867	♀ VENUS.		
8	7. 9	17. 54	7, 78	8. 0569	0. 9862	1	13, 78	9. 7981
9	8. 5	16. 19	6, 42	7. 9186	0. 9856	7	14, 83	9. 7663
10	8. 59	13. 53	1. 4, 89	-7. 7160	+0. 9850	13	16, 04	9. 7324
11	9. 50	10. 49	3, 39	7. 3263	0. 9843	19	17, 42	9. 6964
12	10. 39	7. 20	2, 16	+6. 9731	0. 9836	25	19, 02	9. 6582
13	11. 27	+ 3. 35	1, 36	7. 5988	0. 9829	31	20, 86	9. 6182
14	12. 14	- 0. 16	1, 02	7. 8439	0. 9822	♂ MARS.		
15	13. 0	4. 3	1, 16	7. 9987	0. 9815	1	4, 14	0. 3206
16	13. 46	7. 43	1, 76	8. 1119	0. 9807	7	4, 24	0. 3107
17	14. 35	11. 5	1. 2, 85	+8. 2011	+0. 9800	13	4, 34	0. 3002
18	15. 25	14. 1	4, 29	8. 2744	0. 9792	19	4, 45	0. 2893
19	16. 17	16. 19	5, 95	8. 3365	0. 9784	25	4, 57	0. 2779
20	17. 13	17. 51	7, 51	8. 3904	0. 9776	31	4, 69	0. 2661
21	18. 10	18. 24	8, 82	8. 4379	0. 9767	♃ JUPITER.		
22	19. 10	17. 51	9, 60	8. 4803	0. 9758	1	1, 39	0. 7933
23	20. 10	16. 6	9, 80	8. 5185	0. 9749	7	1, 40	0. 7916
24	♄	.....	.....	+8. 5533	+0. 9740	13	1, 41	0. 7894
25	21. 10	13. 16	1. 9, 49	8. 5851	0. 9731	19	1, 42	0. 7866
26	22. 10	9. 31	8, 88	8. 6145	0. 9722	25	1, 43	0. 7833
27	23. 8	5. 8	8, 27	8. 6417	0. 9713	31	1, 44	0. 7794
28	0. 6	- 0. 27	7, 84	8. 6670	0. 9704	♄ SATURN.		
29	1. 3	+ 4. 13	7, 70	8. 6906	0. 9694	1	1, 04	0. 9208
30	2. 0	8. 33	7, 80	8. 7128	0. 9685	7	1, 05	0. 9180
31	2. 57	12. 20	1. 8, 09	+8. 7338	+0. 9675	13	1, 05	0. 9157
						19	1, 06	0. 9138
						25	1, 06	0. 9120
						31	1, 06	0. 9120
						♂ GEORGIAN.		
						1	0, 42	1. 3167
						11	0, 42	1. 317
						21	0, 42	1. 3
						31	0, 42	1

♄ Apog. 15^d.

♄ Perig. 27^d.

FEBRUARY 1830.

Days of the Month.	Astronomical Week Days.	At Greenwich Apparent Noon.				At Greenwich Mean Noon.				Days of the Year.
		Mean Time.	Hourly Dif- ference. + —	Double the Sun's daily Var. in Declin. +	The Sun's Semidiameter passing the Meridian in Sidereal Time.	Sidereal Time.	Mean Equinoctial Time, adding + 0 ^d .714242.	The Sun's Semi- diameter.		
		h m s	s	"	m s	h m s	Days.	"		
1	D	0. 13. 56, 6	0, 32	2044	1. 8, 24	20. 44. 44, 17	315	16. 15, 27	32	
2	☾	14. 4, 2	0, 28	2079	8, 12	48. 40, 72	316	15, 11	33	
3	☿	14. 10, 9	0, 25	2114	8, 00	52. 37, 28	317	14, 95	34	
4	♈	14. 16, 8	0, 21	2149	7, 89	56. 33, 83	318	14, 79	35	
5	♀	14. 21, 9	0, 17	2181	7, 78	21. 0. 30, 39	319	14, 62	36	
6	♊	14. 26, 1	0, 14	2213	7, 66	4. 26, 94	320	14, 45	37	
7	☉	0. 14. 29, 5	0, 11	2245	1. 7, 54	21. 8. 23, 49	321	16. 14, 27	38	
8	D	14. 32, 1	0, 07	2276	7, 43	12. 20, 05	322	14, 09	39	
9	♈	14. 33, 9	0, 05	2306	7, 32	16. 16, 60	323	13, 91	40	
10	☿	14. 35, 0	0, 01	2335	7, 21	20. 13, 16	324	13, 73	41	
11	♈	14. 35, 2	0, 02	2364	7, 10	24. 9, 71	325	13, 54	42	
12	♀	14. 34, 8	0, 05	2391	6, 99	28. 6, 26	326	13, 35	43	
13	♊	14. 33, 5	0, 08	2417	6, 88	32. 2, 82	327	13, 15	44	
14	☉	0. 14. 31, 5	0, 11	2443	1. 6, 77	21. 35. 59, 37	328	16. 12, 95	45	
15	D	14. 28, 8	0, 14	2469	6, 67	39. 55, 92	329	12, 75	46	
16	♈	14. 25, 4	0, 17	2493	6, 56	43. 52, 48	330	12, 54	47	
17	☿	14. 21, 3	0, 20	2516	6, 46	47. 49, 03	331	12, 33	48	
18	♈	14. 16, 5	0, 23	2539	6, 36	51. 45, 58	332	12, 11	49	
19	♀	14. 11, 0	0, 25	2561	6, 26	55. 42, 14	333	11, 89	50	
20	♊	14. 4, 9	0, 28	2582	6, 16	59. 38, 69	334	11, 66	51	
21	☉	0. 13. 58, 2	0, 31	2602	1. 6, 07	22. 3. 35, 24	335	16. 11, 44	52	
22	D	13. 50, 8	0, 34	2621	5, 97	7. 31, 80	336	11, 21	53	
23	♈	13. 42, 7	0, 36	2640	5, 88	11. 28, 35	337	10, 98	54	
24	☿	13. 34, 0	0, 39	2657	5, 79	15. 24, 90	338	10, 75	55	
25	♈	13. 24, 7	0, 41	2673	5, 70	19. 21, 45	339	10, 52	56	
26	♀	13. 14, 9	0, 44	2690	5, 62	23. 18, 01	340	10, 29	57	
27	♊	13. 4, 4	0, 46	2705	5, 54	27. 14, 56	341	10, 05	58	
28	☉	0. 12. 53, 4	0, 48	2718	1. 5, 46	22. 31. 11, 11	342	16. 9, 80	59	

FEBRUARY 1830.

Days of the Month.	THE MOON'S			Relative to the Corrections of the Stars' Places.		THE PLANETS		
	Right Asc.	Declin.	Semidiameter	At 9 ^h . 4 ^m , or + 0 ^d , 378;		Days.	Horiz. Paral.	Log. Di from the Earth
	at the Time of her Transit.	at the Time of her Transit.	passing the Meridian in Sidereal Time.	LOGARITHM OF		♄ MERCURY.		
	h m	o /	m s	C	D	1	"	
1	3. 54	+15. 18	1. 8, 30	+8. 7535	+0. 9665	7	12, 45	9. 844
2	4. 52	17. 19	8, 53	8. 7720	0. 9655	13	13, 47	9. 808
3	5. 50	18. 16	8, 28	8. 7895	0. 9646	19	12, 97	9. 824
4	6. 48	18. 8	7, 56	8. 8062	0. 9636	25	11, 72	9. 866
5	7. 44	16. 59	6, 47	8. 8220	0. 9626	28	11, 07	9. 896
6	8. 38	14. 57	5, 15	8. 8371	0. 9616	♀ VENUS.		
7	9. 30	12. 10	1. 3, 74	+8. 8515	+0. 9606	1	21, 18	9. 611
8	10. 20	8. 53	2, 52	8. 8654	0. 9597	7	23, 28	9. 570
9	11. 8	5. 14	1, 58	8. 8786	0. 9587	13	25, 54	9. 530
10	11. 55	+ 1. 25	1, 04	8. 8913	0. 9577	19	27, 79	9. 493
11	12. 42	- 2. 25	0, 91	8. 9033	0. 9567	25	29, 72	9. 464
12	13. 28	6. 8	1, 25	8. 9149	0. 9558	28	30, 44	9. 454
13	14. 15	9. 36	2, 02	8. 9260	0. 9548	♂ MARS.		
14	15. 4	12. 42	1. 3, 16	+8. 9367	+0. 9539	1	4, 71	0. 264
15	15. 54	15. 15	4, 58	8. 9471	0. 9529	7	4, 85	0. 251
16	16. 47	17. 7	6, 13	8. 9571	0. 9520	13	5, 00	0. 238
17	17. 42	18. 8	7, 62	8. 9667	0. 9512	19	5, 15	0. 228
18	18. 40	18. 10	8, 85	8. 9760	0. 9503	25	5, 31	0. 219
19	19. 39	17. 3	9, 62	8. 9850	0. 9494	28	5, 40	0. 204
20	20. 40	14. 49	9, 72	8. 9937	0. 9485	♃ JUPITER.		
21	21. 40	11. 31	1. 9, 78	+9. 0021	+0. 9477	1	1, 44	0. 776
22	♄	.....	....	9. 0102	0. 9469	7	1, 46	0. 774
23	22. 40	7. 22	9, 44	9. 0180	0. 9460	13	1, 47	0. 768
24	23. 40	- 2. 40	9, 12	9. 0256	0. 9452	19	1, 49	0. 764
25	0. 39	+ 2. 12	8, 87	9. 0330	0. 9445	25	1, 51	0. 758
26	1. 38	6. 52	8, 82	9. 0402	0. 9438	28	1, 52	0. 755
27	2. 37	10. 57	8, 93	9. 0472	0. 9430	♄ SATURN.		
28	3. 36	14. 20	1. 8, 97	+9. 0541	+0. 9423	1	1, 06	0. 911
						7	1, 06	0. 912
						13	1, 06	0. 912
						19	1, 06	0. 913
						25	1, 05	0. 915
						28	1, 05	0. 916
						♂ GEORGIAN.		
						1	0, 42	1. 318
						11	0, 42	1. 318
						21	0, 42	1. 316
						28	0, 42	1. 315

♄ Apog. 12^d.

♄ Perig. 24^d.

MARCH 1830.

At Greenwich Apparent Noon.					At Greenwich Mean Noon.				
	Mean Time.	Hourly Dif- ference — +	Double the Sun's daily Var. in Declin. + —	The Sun's Semidiameter passing the Meridian in Sidereal Time.	Sidereal Time.	Mean Equinoctial Time, + 0 ^h 71 ^m 42 ^s adding — + 0 ^h 47 ^m 19 ^s	The Sun's Semi- diameter.	Days.	Days of the Year.
	h m s	a	"	m s	h m s	Days.	' "		
1	0. 12. 41, 8	0, 51	2731	1. 5, 38	22. 35. 7, 67	343	16. 9, 55	60	
2	12. 29, 6	0, 53	2744	5, 31	39. 4, 22	344	9, 30	61	
3	12. 17, 0	0, 55	2756	5, 24	43. 0, 77	345	9, 05	62	
4	12. 3, 8	0, 57	2767	5, 17	46. 57, 32	346	8, 80	63	
5	11. 50, 2	0, 58	2777	5, 11	50. 53, 87	347	8, 55	64	
6	11. 36, 2	0, 60	2787	5, 05	54. 50, 43	348	8, 30	65	
7	0. 11. 21, 7	0, 62	2795	1. 4, 98	22. 58. 46, 98	349	16. 8, 04	66	
8	11. 6, 8	0, 64	2803	4, 93	23. 2. 43, 53	350	7, 78	67	
9	10. 51, 5	0, 65	2811	4, 87	6. 40, 08	351	7, 52	68	
10	10. 35, 8	0, 66	2817	4, 82	10. 36, 64	352	7, 26	69	
11	10. 19, 9	0, 68	2823	4, 77	14. 33, 19	353	7, 00	70	
12	10. 3, 6	0, 69	2828	4, 72	18. 29, 74	354	6, 73	71	
13	9. 47, 0	0, 70	2832	4, 68	22. 26, 29	355	6, 46	72	
14	0. 9. 30, 1	0, 71	2836	1. 4, 64	23. 26. 22, 85	356	16. 6, 20	73	
15	9. 13, 0	0, 72	2839	4, 61	30. 19, 40	357	5, 93	74	
16	8. 55, 7	0, 73	2842	4, 57	34. 15, 95	358	5, 66	75	
17	8. 38, 2	0, 74	2844	4, 54	38. 12, 50	359	5, 39	76	
18	8. 20, 5	0, 75	2844	4, 51	42. 9, 05	360	5, 12	77	
19	8. 2, 6	0, 75	2844	4, 49	46. 5, 61	361	4, 84	78	
20	7. 44, 6	0, 75	2843	4, 47	50. 2, 16	*362	4, 56	79	
21	0. 7. 26, 5	0, 76	2842	1. 4, 45	23. 53. 58, 71	363	16. 4, 28	80	
22	7. 8, 3	0, 76	2841	4, 43	57. 55, 26	364	4, 00	81	
23	6. 50, 0	0, 76	2837	4, 42	0. 1. 51, 82	0	3, 72	82	
24	6. 31, 6	0, 77	2833	4, 41	5. 48, 37	1	3, 44	83	
25	6. 13, 2	0, 77	2830	4, 40	9. 44, 92	2	3, 17	84	
26	5. 54, 8	0, 77	2824	4, 40	13. 41, 47	3	2, 90	85	
27	5. 36, 3	0, 77	2818	4, 40	17. 38, 03	4	2, 62	86	
28	0. 5. 17, 8	0, 77	2812	1. 4, 40	0. 21. 34, 58	5	16. 2, 35	87	
29	4. 59, 3	0, 77	2804	4, 41	25. 31, 13	6	2, 07	88	
30	4. 40, 8	0, 77	2796	4, 42	29. 27, 68	7	1, 79	89	
31	4. 22, 4	0, 77	2787	4, 43	33. 24, 24	8	1, 52	90	

* True Equinox, 1829⁷.362³.714242 + 0^h.610963 = 1829⁷.363⁴.325205.

MARCH 1830.

THE MOON'S			Relative to the Corrections of the Stars' Places.		THE PLANETS'		
Right Asc. at the Time of her Transit.	Declin. at the Time of her Transit.	Semidiameter passing the Meridian in Sidereal Time.	At 9 ^h . 4 ^m , or + 0 ^d , 378;		Days.	Horiz. Paral- lax.	Log. Dist. from the Earth.
			LOGARITHM OF		♂ MERCURY.		
h m	o ' "	m s	C	D			
4. 35	+ 16. 42	1. 8, 88	+ 9. 0608	+ 0. 9416	1	10, 86.	9. 9016
5. 33	18. 0	8, 47	9. 0672	0. 9410	7	9, 75	9. 9497
6. 30	18. 12	7, 66	9. 0734	0. 9404	13	8, 86	9. 9901
7. 26	17. 22	6, 56	9. 0796	0. 9398	19	8, 16	0. 0247
8. 20	15. 38	5, 23	9. 0857	0. 9392	25	7, 61	0. 0562
9. 12	13. 9	3, 87	9. 0916	0. 9387	31	7, 17	0. 0820
					♀ VENUS.		
10. 2	10. 4	1. 2, 65	+ 9. 0973	+ 0. 9382	1	30, 62	9. 4514
10. 51	6. 34	1, 66	9. 1030	0. 9377	7	31, 13	9. 4443
11. 38	+ 2. 49	1, 05	9. 1085	0. 9373	13	30, 47	9. 4536
12. 25	- 1. 0	0, 82	9. 1139	0. 9369	19	28, 85	9. 4774
13. 11	4. 47	0, 96	9. 1192	0. 9365	25	26, 67	9. 5115
13. 58	8. 21	1, 48	9. 1244	0. 9361	31	24, 32	9. 5515
14. 46	11. 35	2, 36	9. 1295	0. 9358	♂ MARS.		
15. 35	14. 19	1. 3, 52	+ 9. 1346	+ 0. 9355	1	5, 43	0. 2026
16. 26	16. 27	4, 86	9. 1396	0. 9352	7	5, 62	0. 1891
17. 20	17. 48	6, 19	9. 1445	0. 9350	13	5, 81	0. 1732
18. 14	18. 15	7, 41	9. 1493	0. 9348	19	6, 02	0. 1579
19. 11	17. 41	8, 37	9. 1541	0. 9346	25	6, 24	0. 1422
20. 10	16. 3	9, 01	9. 1588	0. 9345	31	6, 48	0. 1259
21. 9	13. 20	9, 34	9. 1635	0. 9344	♂ JUPITER.		
22. 8	9. 40	1. 9, 46	+ 9. 1681	+ 0. 9343	1	1, 53	0. 7540
23. 8	5. 14	9, 49	9. 1727	0. 9343	7	1, 55	0. 7475
0. 8	- 0. 22	9, 61	9. 1772	0. 9343	13	1, 57	0. 7406
♂	....	....	9. 1817	0. 9343	19	1, 60	0. 7332
1. 8	+ 4. 34	9, 83	9. 1862	0. 9344	25	1, 63	0. 7256
2. 9	9. 8	10, 08	9. 1906	0. 9345	31	1, 66	0. 7178
3. 10	13. 1	10, 28	9. 1950	0. 9346	♂ SATURN.		
4. 11	15. 55	1. 10, 20	+ 9. 1994	+ 0. 9347	1	1, 05	0. 9172
5. 12	17. 42	9, 73	9. 2038	0. 9349	7	1, 04	0. 9199
6. 11	18. 17	8, 76	9. 2081	0. 9351	13	1, 03	0. 9231
7. 9	17. 47	7, 42	9. 2124	0. 9354	19	1, 03	0. 9266
					25	1, 02	0. 9305
					31	1, 01	0. 9347
					♂ GEORGIAN.		
					1	0, 42	1. 3155
					11	0, 42	1. 3134
					21	0, 42	1. 3108
					31	0, 43	1

▷ Apog. 11^d.

▷ Perig. 24^d.

APRIL 1830.

Days of the Month.	Astronomical Week Days.	At Greenwich Apparent Noon.				At Greenwich Mean Noon.							
		Mean Time.	Hourly Dif- ference — +	Double the Sun's daily Var. in Declin. + —	The Sun's Semidiameter passing the Meridian in Sidereal Time.	Sidereal Time.	Mean Equinoctial Time, adding +0 ^s .471978.	The Sun's Semi- diameter					
h	m	s	"	"	m	s	h	m	s	Days.	"	"	
1	♈	0.	4.	4, 0	0, 76	2777	1.	4.	44	0. 37. 20, 79	9	16.	1, 24
2	♈		3.	45, 8	0, 76	2767		4.	46	41. 17, 34	10		0, 96
3	♈		3.	27, 6	0, 75	2756		4.	48	45. 13, 89	11		0, 68
4	♈	0.	3.	9, 6	0, 74	2744	1.	4.	50	0. 49. 10, 45	12	16.	0, 40
5	♈		2.	51, 7	0, 74	2732		4.	52	53. 7, 00	13		0, 13
6	♈		2.	33, 9	0, 73	2720		4.	55	57. 3, 55	14	15.	59, 85
7	♈		2.	16, 4	0, 72	2706		4.	58	1. 1. 0, 10	15		59, 58
8	♈		1.	59, 1	0, 71	2692		4.	61	4. 56, 66	16		59, 31
9	♈		1.	42, 0	0, 70	2677		4.	65	8. 53, 21	17		59, 04
10	♈		1.	25, 1	0, 69	2661		4.	69	12. 49, 76	18		58, 77
11	♈	0.	1.	8, 6	0, 68	2646	1.	4.	73	1. 16. 46, 31	19	15.	58, 50
12	♈		0.	52, 3	0, 67	2629		4.	77	20. 42, 87	20		58, 23
13	♈		0.	36, 3	0, 65	2612		4.	82	24. 39, 42	21		57, 96
14	♈		0.	20, 7	0, 64	2594		4.	86	28. 35, 97	22		57, 69
15	♈		0.	5, 4	0, 62	2575		4.	91	32. 32, 53	23		57, 42
16	♈	23*	59.	50, 5	0, 60	2556		4.	97	36. 29, 08	24		57, 15
17	♈		59.	36, 0	0, 59	2537		5.	02	40. 25, 63	25		56, 89
18	♈	23*	59.	21, 9	0, 57	2516	1.	5.	08	1. 44. 22, 18	26	15.	56, 62
19	♈		59.	8, 2	0, 55	2494		5.	14	48. 18, 74	27		56, 36
20	♈		58.	54, 9	0, 53	2472		5.	20	52. 15, 29	28		56, 10
21	♈		58.	42, 1	0, 52	2450		5.	26	56. 11, 84	29		55, 84
22	♈		58.	29, 7	0, 50	2427		5.	33	2. 0. 8, 40	30		55, 59
23	♈		58.	17, 8	0, 48	2402		5.	40	4. 4, 95	31		55, 34
24	♈		58.	6, 3	0, 46	2377		5.	46	8. 1, 50	32		55, 09
25	♈	23*	57.	55, 3	0, 44	2351	1.	5.	53	2. 11. 58, 06	33	15.	54, 84
26	♈		57.	44, 7	0, 42	2325		5.	60	15. 54, 61	34		54, 60
27	♈		57.	34, 6	0, 40	2299		5.	67	19. 51, 17	35		54, 36
28	♈		57.	25, 0	0, 38	2271		5.	75	23. 47, 72	36		54, 11
29	♈		57.	15, 9	0, 36	2242		5.	82	27. 44, 27	37		53, 87
30	♈		57.	7, 3	0, 34	2214		5.	40	31. 40, 83	38		53, 63

* Subtracting 24^h, or 1 Day.

APRIL 1830.

THE MOON'S				Relative to the Corrections of the Stars' Places.		THE PLANETS'		
Right Asc.	Declin.	Semidiameter	At 9 ^h . 4 ^m , or + 0 ^d . 378;	LOGARITHM		Days.	Horiz. Paral.	Log. Dist. from the Earth.
at the Time of her Transit.	at the Time of her Transit.	passing the Meridian in Sidereal Time.		C	D			
h m	° ' "	m s						
1 8. 4	+ 16. 18	1. 5. 90	+ 9. 2167	+ 0. 9357	♿ MERCURY.			
2 8. 56	14. 1	4. 36	9. 2210	0. 9360	1	7. 11	0. 0857	
3 9. 47	11. 6	2. 97	9. 2252	0. 9363	7	6. 79	0. 1059	
					13	6. 57	0. 1200	
					19	6. 49	0. 1252	
					25	6. 61	0. 1176	
					♀ VENUS.			
4 10. 36	7. 44	1. 1. 86	+ 9. 2295	+ 0. 9367	1	23. 94	9. 5584	
5 11. 23	4. 5	1. 10	9. 2338	0. 9371	7	21. 71	9. 6009	
6 12. 10	+ 0. 15	0. 76	9. 2381	0. 9375	13	19. 69	9. 6433	
7 12. 56	- 3. 33	0. 80	9. 2423	0. 9379	19	17. 92	9. 6841	
8 13. 42	7. 14	1. 21	9. 2466	0. 9384	25	16. 39	9. 7230	
9 14. 30	10. 37	1. 96	9. 2509	0. 9389	♂ MARS.			
0 15. 19	13. 33	2. 98	9. 2552	0. 9394	1	6. 52	0. 1232	
1 16. 9	15. 54	1. 4. 12	+ 9. 2595	+ 0. 9400	7	6. 78	0. 1065	
2 17. 1	17. 32	5. 30	9. 2638	0. 9406	13	7. 05	0. 0894	
3 17. 55	18. 19	6. 33	9. 2681	0. 9411	19	7. 34	0. 0719	
4 18. 50	18. 8	7. 18	9. 2724	0. 9417	25	7. 65	0. 0539	
5 19. 46	16. 57	7. 77	9. 2768	0. 9423	♃ JUPITER.			
6 20. 43	14. 44	8. 11	9. 2811	0. 9429	1	1. 66	0. 7164	
7 21. 40	11. 34	8. 36	9. 2854	0. 9435	7	1. 69	0. 7083	
8 22. 38	7. 34	1. 8. 57	+ 9. 2898	+ 0. 9441	13	1. 73	0. 7000	
9 23. 37	- 2. 59	8. 93	9. 2942	0. 9448	19	1. 76	0. 6917	
0 0. 36	+ 1. 55	9. 49	9. 2985	0. 9455	25	1. 80	0. 6834	
1 1. 36	6. 45	10. 18	9. 3029	0. 9462	♄ SATURN.			
2 6	.....	.....	9. 3073	0. 9469	1	1. 01	0. 9354	
3 2. 38	11. 8	10. 85	9. 3117	0. 9476	7	1. 00	0. 9390	
4 3. 40	14. 42	11. 30	9. 3161	0. 9483	13	0. 98	0. 9445	
5 4. 43	17. 7	1. 11. 21	+ 9. 3206	+ 0. 9491	19	0. 97	0. 9492	
6 5. 45	18. 18	10. 45	9. 3250	0. 9498	25	0. 96	0. 9540	
7 6. 46	18. 15	9. 15	9. 3295	0. 9505	♂ GEORGIAN.			
8 7. 43	17. 6	7. 41	9. 3339	0. 9513	1	0. 43	1. 3076	
9 8. 38	15. 2	5. 59	9. 3384	0. 9520	11	0. 43	1. 3043	
0 9. 30	12. 17	3. 87	9. 3429	0. 9528	21	0. 43	1. 3008	
D Apog. 8 ^d .				D Perig. 22 ^d .				

MAY 1830.

Days of the Month.		At Greenwich Apparent Noon.					At Greenwich Mean Noon.				
Astronomical Week Days.		Mean Time.	Hourly Dif- ference — +	Double the Sun's daily Var. in Declin. +	The Sun's Semidiameter passing the Meridian in Sidereal Time.	Sidereal Time.	Mean Equinoctial Time, adding + 0 ^h 47 1978.	The Sun's Semi- diameter.			
									h m s	s	"
1	h	23*56. 59, 2		2184	1. 5, 98	2. 35. 37, 38	39	15. 53, 39			
			0, 32								
2	⊙	23*56. 51, 6	0, 29	2154	1. 6, 06	2. 39. 33, 93	40	15. 53, 16			
3	☽	56. 44, 6	0, 27	2124	6, 14	43. 30, 49	41	52, 92			
4	♂	56. 38, 0	0, 25	2092	6, 22	47. 27, 04	42	52, 70			
5	♀	56. 32, 0	0, 22	2060	6, 30	51. 23, 60	43	52, 47			
6	♂	56. 26, 6	0, 20	2028	6, 38	55. 20, 15	44	52, 25			
7	☽	56. 21, 8	0, 18	1995	6, 46	59. 16, 71	45	52, 03			
8	h	56. 17, 4	0, 15	1961	6, 54	3. 3. 13, 26	46	51, 82			
			0, 13								
9	⊙	23*56. 13, 7	0, 13	1927	1. 6, 63	3. 7. 9, 82	47	15. 51, 61			
10	☽	56. 10, 6	0, 11	1893	6, 71	11. 6, 37	48	51, 40			
11	♂	56. 8, 0	0, 11	1858	6, 79	15. 2, 93	49	51, 19			
12	♀	56. 6, 0	0, 08	1821	6, 87	18. 59, 48	50	50, 98			
13	♂	56. 6, 0	0, 06	1784	6, 95	22. 56, 04	51	50, 78			
14	☽	56. 4, 6	0, 03	1748	7, 03	26. 52, 59	52	50, 58			
15	h	56. 3, 6	0, 01	1711	7, 11	30. 49, 15	53	50, 38			
			0, 02								
16	⊙	23*56. 4, 0	0, 05	1672	1. 7, 20	3. 34. 45, 70	54	15. 50, 19			
17	☽	56. 5, 1	0, 06	1633	7, 28	38. 42, 26	55	50, 00			
18	♂	56. 6, 6	0, 09	1595	7, 36	42. 38, 81	56	49, 81			
19	♀	56. 8, 8	0, 11	1555	7, 44	46. 35, 37	57	49, 63			
20	♂	56. 11, 5	0, 14	1514	7, 52	50. 31, 92	58	49, 44			
21	☽	56. 14, 8	0, 16	1473	7, 60	54. 28, 48	59	49, 26			
22	h	56. 18, 7	0, 18	1432	7, 67	58. 25, 03	60	49, 09			
			0, 20								
23	⊙	23*56. 23, 1	0, 20	1390	1. 7, 75	4. 2. 21, 59	61	15. 48, 92			
24	☽	56. 27, 9	0, 22	1348	7, 82	6. 18, 14	62	48, 76			
25	♂	56. 33, 3	0, 25	1305	7, 89	10. 14, 70	63	48, 60			
26	♀	56. 39, 2	0, 27	1261	7, 96	14. 11, 25	64	48, 44			
27	♂	56. 45, 6	0, 28	1217	8, 03	18. 7, 81	65	48, 29			
28	☽	56. 52, 4	0, 30	1173	8, 10	22. 4, 37	66	48, 14			
29	h	56. 59, 7	0, 32	1129	8, 16	26. 0, 92	67	48, 00			
			0, 34								
30	⊙	23*57. 7, 3	0, 34	1083	1. 8, 23	4. 29. 57, 48	68	15. 47, 86			
31	☽	57. 15, 4	0, 36	1037	8, 29	33. 54, 03	69	47, 73			

• Subtracting 24^h, or 1 Day.

MAY 1830.

THE MOON'S			Relative to the Corrections of the Stars' Places.		THE PLANETS'		
Right Asc. at the Time of her Transit.	Declin. at the Time of her Transit.	Semidiameter passing the Meridian in Sidereal Time.	At 9 ^h . 4 ^m , or + 0 ^d , 378;		Days.	Horiz. Paral- lax.	Log. Dist. from the Earth.
			LOGARITHM OF		♂ MERCURY.		
			C	D			
h m	° ' "	m s			1	7, 00	0. 0924
10. 20	+ 9. 0	1. 2, 46	+9. 3474	+0. 9536	7	7, 70	0. 0509
11. 8	5. 24	1. 1, 45	+9. 3519	+0. 9544	13	8, 71	9. 9973
11. 54	+ 1. 35	0. 95	9. 3564	0. 9552	19	10, 01	9. 9369
12. 40	- 2. 16	0. 77	9. 3609	0. 9550	25	11, 55	9. 8749
13. 27	6. 2	1. 08	9. 3655	0. 9567	31	13, 21	9. 8165
14. 14	9. 34	1. 78	9. 3700	0. 9575	♀ VENUS.		
15. 3	12. 43	2. 73	9. 3745	0. 9583	1	15, 06	9. 7596
15. 53	16. 20	3. 86	9. 3791	0. 9590	7	13, 92	9. 7940
16. 45	17. 15	1. 4, 98	+9. 3836	+0. 9598	13	12, 92	9. 8262
17. 38	18. 20	5. 98	9. 3882	0. 9606	19	12, 05	9. 8563
18. 33	18. 29	6. 75	9. 3927	0. 9613	25	11, 30	9. 8845
19. 29	17. 38	7. 16	9. 3973	0. 9620	31	10, 64	9. 9108
20. 24	15. 47	7. 32	9. 4018	0. 9628	♂ MARS.		
21. 20	13. 0	7. 33	9. 4064	0. 9635	1	7, 99	0. 0355
22. 16	9. 24	7. 37	9. 4109	0. 9642	7	8, 33	0. 0160
23. 12	5. 8	1. 7, 59	+9. 4155	+0. 9649	13	8, 71	9. 9974
0. 9	- 0. 28	8. 13	9. 4200	0. 9655	19	9, 12	9. 9776
1. 7	+ 4. 21	8. 93	9. 4245	0. 9662	25	9, 55	9. 9574
2. 7	8. 57	9. 92	9. 4290	0. 9669	31	10, 02	9. 9368
3. 8	12. 59	10. 93	9. 4336	0. 9676	♂ JUPITER.		
6	.....	.....	9. 4381	0. 9682	1	1, 83	0. 6751
4. 11	16. 6	11. 58	9. 4426	0. 9688	7	1, 86	0. 6671
5. 14	17. 59	1. 11, 55	+9. 4471	+0. 9694	13	1, 90	0. 6593
6. 17	18. 36	10. 71	9. 4516	0. 9700	19	1, 93	0. 6516
7. 18	17. 57	9. 25	9. 4560	0. 9706	25	1, 96	0. 6450
8. 15	16. 14	7. 33	9. 4605	0. 9711	31	1, 99	0. 6388
9. 10	13. 42	5. 36	9. 4649	0. 9717	♂ SATURN.		
10. 1	10. 32	3. 02	9. 4694	0. 9722	1	0, 95	0. 9588
10. 51	6. 58	2. 25	9. 4738	0. 9727	7	0, 94	0. 9635
11. 38	+ 3. 10	1. 1, 36	+9. 4782	+0. 9731	13	0, 93	0. 9682
12. 24	- 0. 41	0. 94	9. 4826	0. 9736	19	0, 92	0. 9727
					25	0, 91	0. 9771
					31	0, 90	0. 9812
					♂ GEORGIAN.		
					1	0, 44	1. 2972
					11	0, 44	1. 2935
					21	0, 44	1. 2899
					31	0, 45	1. 2865

▷ Apog. 5^d.

▷ Perig. 20^d.

JUNE 1850.

Days of the Month.	Astronomical Week Days.	At Greenwich Apparent Noon.				At Greenwich Mean Noon.			
		Mean Time.	Hourly Dif- ference +	Double the Sun's daily Var. in Declin. + —	The Sun's Semidiameter passing the Meridian in Sidereal Time.	Sidereal Time.	Mean Equinoctial Time, adding + 0 ^s . 47.1978.	The Sun's Semi- diameter.	
									h m s
1	♂	23 ^s 57. 24, 0	0, 37	992	1. 8, 34	4. 37. 50, 59	70	15. 47, 60	
2	♂	57. 32, 9	0, 38	946	8, 39	41. 47, 15	71	47, 47	
3	♂	57. 42, 1	0, 40	899	8, 44	45. 43, 70	72	47, 34	
4	♂	57. 51, 8	0, 42	853	8, 50	49. 40, 26	73	47, 21	
5	♂	58. 1, 8	0, 43	806	8, 55	53. 36, 81	74	47, 08	
6	♂	23 ^s 58. 12, 1	0, 44	758	1. 8, 60	4. 57. 33, 37	75	15. 46, 97	
7	♂	58. 22, 7	0, 45	710	8, 64	5. 1. 29, 93	76	46, 86	
8	♂	58. 33, 6	0, 47	662	8, 68	5. 26, 48	77	46, 75	
9	♂	58. 44, 9	0, 48	615	8, 72	9. 23, 04	78	46, 65	
10	♂	58. 56, 4	0, 49	567	8, 75	13. 19, 59	79	46, 55	
11	♂	59. 8, 2	0, 50	517	8, 78	17. 16, 15	80	46, 46	
12	♂	59. 20, 2	0, 51	469	8, 81	21. 12, 71	81	46, 37	
13	♂	23 ^s 59. 32, 4	0, 52	420	1. 8, 84	5. 25. 9, 26	82	15. 46, 29	
14	♂	59. 44, 9	0, 52	371	8, 86	29. 5, 82	83	46, 22	
15	♂	59. 57, 4	0, 53	322	8, 88	33. 2, 38	84	46, 15	
16	♂	0. 0. 10, 2	0, 54	272	8, 90	36. 58, 93	85	46, 08	
17	♂	0. 23, 1	0, 54	223	8, 91	40. 55, 49	86	46, 01	
18	♂	0. 36, 1	0, 54	173	8, 92	44. 52, 04	87	45, 94	
19	♂	0. 49, 1	0, 55	124	8, 93	48. 48, 60	88	45, 87	
20	♂	0. 1. 2, 2	0, 55	75	1. 8, 93	5. 52. 45, 16	89	15. 45, 81	
21	♂	1. 15, 3	0, 55	24	8, 93	56. 41, 71	90	45, 76	
22	♂	1. 28, 4	0, 55	26	8, 93	6. 0. 38, 27	91	45, 71	
23	♂	1. 41, 5	0, 54	74	8, 92	4. 34, 83	92	45, 66	
24	♂	1. 54, 4	0, 54	124	8, 91	8. 31, 38	93	45, 62	
25	♂	2. 7, 3	0, 53	174	8, 90	12. 27, 94	94	45, 59	
26	♂	2. 20, 0	0, 52	223	8, 88	16. 24, 50	95	45, 57	
27	♂	0. 2. 32, 6	0, 52	273	1. 8, 86	6. 20. 21, 05	96	15. 45, 55	
28	♂	2. 45, 0	0, 51	322	8, 84	24. 17, 61	97	45, 53	
29	♂	2. 57, 3	0, 50	370	8, 81	28. 14, 16	98	45, 52	
30	♂	3. 9, 2	0, 49	419	8, 78	32. 10, 72	99	45, 51	

* Subtracting 24^h, or 1 Day.

JUNE 1830.

THE MOON'S				Relative to the Corrections of the Stars' Places.		THE PLANETS'		
Right Asc. at the Time of her Transit.	Declin. at the Time of her Transit.	Semidiameter passing the Meridian in Sidereal Time.	At 9 ^h . 4 ^m . or + 0 ^d . 378;		LOGARITHM OF	Days.	Horiz. Paral- lax.	Log. Dist. from the Earth.
h m	° /	m s	C	D		☿ MERCURY.		
13. 11	- 4. 34	1. 1. 07	+9.4870	+0.9740		1	13, 49	9.8076
13. 58	8. 13	1. 59	9.4913	0.9744		7	14, 92	9.7636
14. 46	11. 35	2. 52	9.4956	0.9748		13	15, 61	9.7442
15. 35	14. 27	3. 66	9.4999	0.9752		19	15, 33	9.7521
16. 27	16. 42	4. 88	9.5042	0.9755		25	14, 00	9.7913
						♀ VENUS.		
17. 20	18. 10	1. 6. 01	+9.5085	+0.9758		1	10, 53	9.9150
18. 15	18. 40	6. 84	9.5127	0.9761		7	9, 96	9.9394
19. 11	18. 11	7. 28	9.5169	0.9763		13	9, 45	9.9623
20. 8	16. 39	7. 38	9.5211	0.9766		19	8, 99	9.9837
21. 4	14. 9	7. 19	9.5253	0.9768		25	8, 59	0.0037
21. 59	10. 49	6. 91	9.5294	0.9770		♂ MARS.		
22. 55	6. 48	6. 79	9.5335	0.9771		1	10, 10	9.9333
23. 50	- 2. 20	1. 6. 93	+9.5376	+0.9773		7	10, 60	9.9122
0. 46	+ 2. 21	7. 46	9.5417	0.9774		13	11, 14	9.8906
1. 43	6. 58	8. 33	9.5457	0.9774		19	11, 72	9.8685
2. 41	11. 11	9. 42	9.5497	0.9775		25	11, 35	9.8459
3. 42	14. 43	10. 50	9.5536	0.9775		♃ JUPITER.		
4. 44	17. 13	11. 12	9.5575	0.9775		1	1, 99	0.6378
5. 47	18. 32	11. 09	9.5614	0.9775		7	2, 02	0.6324
6	.....	.....	+9.5653	+0.9774		13	2, 04	0.6279
6. 49	18. 32	1. 10. 28	9.5691	0.9773		19	2, 06	0.6243
7. 49	17. 21	8. 74	9.5729	0.9772		25	2, 07	0.6217
8. 46	15. 9	6. 88	9.5767	0.9771		♄ SATURN.		
9. 40	12. 11	4. 98	9.5804	0.9769		1	0, 90	0.9819
10. 31	8. 43	3. 36	9.5841	0.9767		7	0, 90	0.9858
11. 19	4. 57	2. 09	9.5877	0.9765		13	0, 89	0.9895
12. 7	+ 1. 2	1. 1. 36	+9.5913	+0.9762		19	0, 88	0.9929
12. 53	- 2. 53	1. 14	9.5949	0.9759		25	0, 87	0.9960
13. 40	6. 39	1. 43	9.5985	0.9756		♅ GEORGIAN.		
14. 27	10. 9	2. 17	9.6020	0.9753		1	0, 45	1.2862
						11	0, 45	1.2830
						21	0, 45	1.2800

☾ Apog. 1^d.

☾ Perig. 17^d.

☾ Apog. 29^d.

JULY 1830.

Days of the Month.	Astronomical Week Days.	At Greenwich Apparent Noon.				At Greenwich Mean Noon.			
		Mean Time.	Hourly Dif- ference + —	Double the Sun's daily Var. in Declin. —	The Sun's Semidiameter passing the Meridian in Sidereal Time.	Sidereal Time.	Mean Equinoctial Time, adding + 0 ^s , 471978.	The Sun's Semi- diameter.	
		h m s	s	"	m s	h m s	Days.	' "	' "
1	♈	0. 3. 21, 0	0, 47	469	1. 8, 75	6. 36. 7, 28	100	15. 45, 50	
2	♉	3. 32, 4	0, 47	517	8, 72	40. 3, 83	101	45, 50	
3	♊	3. 43, 7		564	8, 68	44. 0, 39	102	45, 50	
4	♈	0. 3. 54, 6	0, 44	613	1. 8, 63	6. 47. 56, 95	103	15. 45, 51	
5	♉	4. 5, 2	0, 43	661	8, 59	51. 53, 50	104	45, 52	
6	♊	4. 15, 4	0, 42	708	8, 55	55. 50, 06	105	45, 53	
7	♈	4. 25, 4	0, 40	755	8, 50	59. 46, 61	106	45, 55	
8	♉	4. 34, 9	0, 38	802	8, 44	7. 3. 43, 17	107	45, 58	
9	♊	4. 44, 1	0, 37	849	8, 39	7. 39, 73	108	45, 62	
10	♈	4. 52, 9		895	8, 33	11. 36, 28	109	45, 66	
11	♉		0, 35						
12	♊	0. 5. 1, 3	0, 33	941	1. 8, 27	7. 15. 32, 84	110	15. 45, 70	
13	♈	5. 9, 4	0, 31	987	8, 21	19. 29, 40	111	45, 74	
14	♉	5. 16, 9	0, 30	1033	8, 15	23. 25, 95	112	45, 78	
15	♊	5. 24, 1	0, 28	1077	8, 08	27. 22, 51	113	45, 83	
16	♈	5. 30, 8	0, 25	1121	8, 01	31. 19, 06	114	45, 89	
17	♉	5. 36, 9	0, 24	1166	7, 94	35. 15, 62	115	45, 95	
18	♊	5. 42, 7		1210	7, 87	39. 12, 18	116	46, 01	
19	♈		0, 22						
20	♉	0. 5. 48, 0	0, 19	1253	1. 7, 80	7. 43. 8, 73	117	15. 46, 08	
21	♊	5. 52, 6	0, 17	1295	7, 72	47. 5, 29	118	46, 16	
22	♈	5. 56, 8	0, 15	1337	7, 64	51. 1, 84	119	46, 24	
23	♉	6. 0, 4	0, 13	1380	7, 56	54. 58, 40	120	46, 32	
24	♊	6. 3, 4	0, 10	1421	7, 48	58. 54, 95	121	46, 40	
25	♈	6. 5, 9	0, 08	1461	7, 40	8. 2. 51, 51	122	46, 49	
26	♉	6. 7, 8		1501	7, 32	6. 48, 06	123	46, 58	
27	♊		0, 05						
28	♈	0. 6. 9, 1	0, 03	1541	1. 7, 24	8. 10. 44, 62	124	15. 46, 68	
29	♉	6. 9, 8	0, 00	1580	7, 16	14. 41, 17	125	46, 78	
30	♊	6. 9, 8		1618	7, 07	18. 37, 73	126	46, 89	
31	♈	6. 9, 2	0, 03	1657	6, 98	22. 34, 28	127	47, 00	
32	♉	6. 8, 1	0, 05	1694	6, 90	26. 30, 84	128	47, 12	
33	♊	6. 6, 3	0, 07	1730	6, 81	30. 27, 39	129	47, 24	
34	♈	6. 3, 9	0, 10	1766	6, 72	34. 23, 95	130	47, 36	

JULY 1830.

THE MOON'S			Relative to the Corrections of the Stars' Places.		THE PLANETS'		
Right Asc. at the Time of her Transit.	Declin. at the Time of her Transit.	Semidiameter passing the Meridian in Sideral Time.	At 9 ^h . 4 ^m , or + 0 ^h . 378;		Days.	Horiz. Paral- lax.	Log. Dist. from the Earth.
h m	° ' "	m s	C	D	♄ MERCURY.		
15. 16	— 13. 15	1. 3. 26	+ 9. 6055	+ 0. 9749	1	12, 26	9. 8489
16. 7	15. 48	4. 54	9. 6089	0. 9745	7	10, 53	9. 9150
17. 0	17. 38	5. 86	9. 6123	0. 9741	13	9, 04	9. 9815
					19	7, 87	0. 0417
					25	7, 06	0. 0889
					31	6, 59	0. 1183
					♀ VENUS.		
17. 54	18. 35	1. 6. 94	+ 9. 6157	+ 0. 9737	1	8, 22	0. 0225
18. 51	18. 32	7. 69	9. 6190	0. 9732	7	7, 89	0. 0402
19. 48	17. 25	7. 95	9. 6223	0. 9727	13	7, 60	0. 0567
20. 45	15. 14	7. 80	9. 6256	0. 9722	19	7, 33	0. 0722
21. 42	12. 7	7. 45	9. 6288	0. 9717	25	7, 09	0. 0867
22. 38	8. 17	7. 08	9. 6320	0. 9711	31	6, 87	0. 1003
23. 34	— 3. 55	6. 82	9. 6351	0. 9705	♂ MARS.		
0. 29	+ 0. 43	1. 6. 93	+ 9. 6382	+ 0. 9699	1	13, 02	9. 8229
1. 25	5. 20	7. 41	9. 6412	0. 9693	7	13, 74	9. 7995
2. 21	9. 39	8. 20	9. 6442	0. 9686	13	14, 51	9. 7758
3. 20	13. 22	9. 13	9. 6472	0. 9679	19	15, 33	9. 7519
4. 20	16. 15	9. 95	9. 6502	0. 9672	25	16, 20	9. 7279
5. 21	18. 3	10. 32	9. 6531	0. 9665	31	17, 12	9. 7041
6. 22	18. 39	10. 05	9. 6560	0. 9658	♃ JUPITER.		
7. 22	18. 3	1. 9. 11	+ 9. 6588	+ 0. 9650	1	2, 08	0. 6202
♄	.....	.....	9. 6616	0. 9642	7	2, 08	0. 6198
8. 20	16. 20	7. 60	9. 6643	0. 9634	13	2, 08	0. 6205
9. 16	13. 43	5. 90	9. 6670	0. 9626	19	2, 07	0. 6223
10. 9	10. 27	4. 27	9. 6697	0. 9617	25	2, 05	0. 6251
10. 59	6. 46	2. 84	9. 6723	0. 9608	31	2, 03	0. 6290
11. 47	+ 2. 51	1. 83	9. 6749	0. 9599	♄ SATURN.		
12. 34	— 1. 6	1. 1. 33	+ 9. 6775	+ 0. 9590	1	0, 87	0. 9987
13. 21	4. 57	1. 31	9. 6801	0. 9581	7	0, 86	1. 0012
14. 8	8. 35	1. 76	9. 6826	0. 9571	13	0, 86	1. 0034
14. 56	11. 52	2. 63	9. 6850	0. 9562	19	0, 86	1. 0051
15. 45	14. 39	3. 83	9. 6874	0. 9552	25	0, 85	1. 0066
16. 37	16. 49	5. 16	9. 6898	0. 9542	31	0, 85	1. 0077
17. 31	18. 11	6. 48	9. 6921	0. 9532	♂ GEORGIAN.		
					1	0, 46	1. 2784
					11	0, 46	1. 2768
					21	0, 46	1. 2755
					31	0, 46	1. 2751

Perig. 14^d.

Apog. 27^d.

AUGUST 1830.

Days of the Month.	Astronomical Week Days.	At Greenwich Apparent Noon.					At Greenwich Mean Noon.			
		Mean Time.	Hourly Difference	Double the Sun's daily Var. in Declin.	The Sun's Semidiameter passing the Meridian in Sidereal Time.		Sidereal Time.	Mean Equinoctial Time, adding + 0 ^h 47 ^m 19 ^s 78.	The Sun's Semidiameter.	
		h m s	s	"	m s	h m s	Days.	" "		
1	☉	0. 6. 0, 8	0, 15	1802	1. 6, 64	8. 38. 20, 50	131	15. 47, 49		
2	☽	5. 57, 2	0, 18	1838	6, 55	42. 17, 06	132	47, 63		
3	♂	5. 52, 9	0, 20	1873	6, 47	46. 13, 61	133	47, 77		
4	♀	5. 48, 0	0, 23	1906	6, 38	50. 10, 17	134	47, 91		
5	♂	5. 42, 6	0, 25	1939	6, 29	54. 6, 72	135	48, 05		
6	♀	5. 36, 5	0, 28	1973	6, 20	58. 3, 28	136	48, 20		
7	♂	5. 29, 8	0, 30	2006	6, 12	9. 1. 59, 83	137	48, 35		
8	☉	0. 5. 22, 6	0, 33	2037	1. 6, 04	9. 5. 56, 39	138	15. 48, 50		
9	☽	5. 14, 8	0, 35	2068	5, 95	9. 52, 94	139	48, 66		
10	♂	5. 6, 5	0, 37	2099	5, 87	13. 49. 50	140	48, 82		
11	♀	4. 57, 6	0, 40	2129	5, 78	17. 46, 05	141	48, 99		
12	♂	4. 48, 1	0, 42	2158	5, 71	21. 42, 60	142	49, 17		
13	♀	4. 38, 1	0, 43	2187	5, 62	25. 39, 16	143	49, 35		
14	♂	4. 27, 7	0, 46	2216	5, 54	29. 35, 71	144	49, 53		
15	☉	0. 4. 16, 7	0, 48	2243	1. 5, 47	9. 33. 32, 27	145	15. 49, 71		
16	☽	4. 5, 1	0, 50	2270	5, 39	37. 28, 82	146	49, 89		
17	♂	3. 53, 1	0, 52	2297	5, 31	41. 25, 38	147	50, 07		
18	♀	3. 40, 5	0, 54	2322	5, 24	45. 21, 93	148	50, 25		
19	♂	3. 27, 5	0, 57	2346	5, 17	49. 18, 48	149	50, 44		
20	♀	3. 13, 9	0, 58	2371	5, 10	53. 15, 03	150	50, 64		
21	♂	2. 59, 9	0, 60	2395	5, 03	57. 11, 59	151	50, 84		
22	☉	0. 2. 45, 4	0, 63	2417	1. 4, 96	10. 1. 8, 14	152	15. 51, 05		
23	☽	2. 30, 3	0, 64	2439	4, 89	5. 4, 69	153	51, 26		
24	♂	2. 15, 0	0, 66	2461	4, 83	9. 1, 25	154	51, 47		
25	♀	1. 59, 1	0, 68	2482	4, 77	12. 57, 80	155	51, 68		
26	♂	1. 42, 8	0, 70	2501	4, 71	16. 54, 35	156	51, 89		
27	♀	1. 26, 0	0, 71	2521	4, 65	20. 50, 91	157	52, 10		
28	♂	1. 8, 9	0, 73	2541	4, 60	24. 47, 46	158	52, 32		
29	☉	0. 0. 51, 4	0, 75	2559	1. 4, 54	10. 28. 44, 01	159	15. 52, 54		
30	☽	0. 33, 5	0, 76	2576	4, 49	32. 40, 57	160	52, 77		
31	♂	0. 15, 3	0, 77	2593	4, 44	36. 37, 12	161	53, 00		

AUGUST 1830.

Days of the Month	THE MOON'S			Relative to the Corrections of the Stars' Places.		THE PLANETS		
	Right Asc.	Decln.	Semidiameter	At 9 ^h , 4 ^m , or +0 ^s , 378;		Days.	Horiz. Paral.	Log. D. from the Earth
	at the Time of her Transit.	at the Time of her Transit.	passing the Meridian in Sidereal Time.	LOGARITHM		♿ MERCURY.		
	h m	° ' "	m s	C	D			
1	18. 26	-18. 37	1. 7. 56	+0.6944	+0.9522	1	6.54	0.12
2	19. 24	17. 59	8. 27	9.6967	0.9512	7	6.40	0.13
3	20. 22	16. 16	8. 40	9.6989	0.9502	13	6.42	0.12
4	21. 20	13. 31	8. 36	9.7011	0.9491	19	6.57	0.11
5	22. 18	9. 51	8. 01	9.7033	0.9481	25	6.82	0.10
6	23. 15	5. 34	7. 67	9.7054	0.9471	31	7.17	0.08
7	0. 11	- 0. 55	7. 53	9.7075	0.9460	♀ VENUS.		
8	1. 8	+ 3. 48	1. 7. 69	+9.7096	+0.9450	1	6.84	0.10
9	2. 5	8. 16	8. 08	9.7116	0.9439	7	6.64	0.11
10	3. 2	12. 12	8. 68	9.7136	0.9428	13	6.47	0.12
11	4. 1	15. 20	9. 26	9.7156	0.9418	19	6.31	0.13
12	5. 1	17. 28	9. 58	9.7175	0.9407	25	6.16	0.14
13	6. 1	18. 29	9. 49	9.7194	0.9396	31	6.03	0.15
14	7. 0	18. 21	8. 82	9.7213	0.9386	♂ MARS.		
15	7. 58	17. 5	1. 7. 64	+9.7231	+0.9375	1	17.27	9.70
16	8. 54	14. 51	6. 18	9.7249	0.9365	7	18.22	9.67
17	9. 47	11. 53	4. 64	9.7267	0.9354	13	19.17	9.65
18	6	.....	.....	9.7284	0.9344	19	20.08	9.63
19	10. 38	8. 22	3. 26	9.7301	0.9334	25	20.93	9.61
20	11. 28	4. 32	2. 20	9.7318	0.9324	31	21.63	9.60
21	12. 15	+ 0. 35	1. 40	9.7335	0.9314	♃ JUPITER.		
22	13. 2	- 3. 20	1. 1. 24	+9.7351	+0.9304	1	2.03	0.62
23	13. 49	7. 5	1. 45	9.7367	0.9294	7	2.01	0.63
24	14. 37	10. 30	2. 02	9.7383	0.9285	13	1.98	0.64
25	15. 25	13. 29	2. 94	9.7399	0.9275	19	1.95	0.64
26	16. 15	15. 54	4. 15	9.7414	0.9266	25	1.92	0.65
27	17. 7	17. 36	5. 45	9.7429	0.9257	31	1.89	0.66
28	18. 1	18. 27	6. 67	9.7444	0.9248	♄ SATURN.		
29	18. 57	18. 21	1. 7. 74	+9.7459	+0.9240	1	0.85	1.00
30	19. 54	17. 10	8. 35	9.7474	0.9231	7	0.85	1.00
31	20. 52	14. 55	8. 63	9.7488	0.9223	13	0.85	1.00
						19	0.85	1.00
						25	0.85	1.00
						31	0.85	1.00
						♅ GEORGIAN.		
						1	0.46	1.27
						11	0.46	1.27
						21	0.46	1.27
						31	0.46	1.27

Perig. 8^d.

Apog. 24^d.

SEPTEMBER 1830.

Days of the Month.	Astronomical Week Days.	At Greenwich Apparent Noon.				At Greenwich Mean Noon.				Day of the Year.
		Mean Time.	Hourly Difference	Double the Sun's daily Var. in Declin.	The Sun's Semidiameter passing the Meridian in Sidereal Time.	Sidereal Time.	Mean Equinoctial Time, adding + 0 ^h 47 ^m 19 ^s .	The Sun's Semidiameter.		
									h m s	
1	♈	23 ^h 59. 56, 8	0, 79	2610	1. 4, 40	10. 40. 33, 67	162	15. 53, 23	24	
2	♉	59. 37, 9	0, 80	2625	4, 35	44. 30, 23	163	53, 47	24	
3	♊	59. 18, 8	0, 81	2640	4, 31	48. 26, 78	164	53, 71	24	
4	♋	58. 59, 4	0, 82	2656	4, 28	52. 23, 33	165	53, 95	24	
5	♌	23 ^h 58. 39, 7	0, 83	2670	1. 4, 24	10. 56. 19, 88	166	15. 54, 20	24	
6	♍	58. 19, 8	0, 83	2683	4, 21	11. 0. 16, 44	167	54, 44	24	
7	♎	57. 59, 8	0, 85	2696	4, 18	4. 12, 99	168	54, 69	25	
8	♏	57. 39, 5	0, 85	2708	4, 15	8. 9, 54	169	54, 94	25	
9	♐	57. 19, 1	0, 85	2719	4, 12	12. 6, 09	170	55, 19	25	
10	♑	56. 58, 6	0, 86	2730	4, 10	16. 2, 65	171	55, 44	25	
11	♒	56. 38, 0	0, 87	2741	4, 08	19. 59, 20	172	55, 69	25	
12	♓	23 ^h 56. 17, 2	0, 87	2751	1. 4, 07	11. 23. 55, 75	173	15. 55, 94	25	
13	♈	55. 56, 4	0, 87	2759	4, 05	27. 52, 30	174	56, 20	25	
14	♉	55. 35, 5	0, 87	2767	4, 04	31. 48, 86	175	56, 46	25	
15	♊	55. 14, 6	0, 87	2776	4, 03	35. 45, 41	176	56, 72	25	
16	♋	54. 53, 6	0, 87	2782	4, 03	39. 41, 96	177	56, 98	25	
17	♌	54. 32, 6	0, 87	2787	4, 03	43. 38, 51	178	57, 25	26	
18	♍	54. 11, 6	0, 87	2793	4, 03	47. 35, 07	179	57, 52	26	
19	♎	23 ^h 53. 50, 6	0, 87	2798	1. 4, 04	11. 51. 31, 62	180	15. 57, 78	26	
20	♏	53. 29, 6	0, 87	2802	4, 04	55. 28, 17	181	58, 05	26	
21	♐	53. 8, 7	0, 87	2805	4, 05	59. 24, 72	182	58, 31	26	
22	♑	52. 47, 9	0, 87	2807	4, 06	12. 3. 21, 28	183	58, 58	26	
23	♒	52. 27, 1	0, 86	2809	4, 08	7. 17, 83	184	58, 86	26	
24	♓	52. 6, 4	0, 85	2810	4, 10	11. 14, 38	185	59, 13	26	
25	♈	51. 45, 9	0, 85	2811	4, 12	15. 10, 93	186	59, 41	26	
26	♉	23 ^h 51. 25, 5	0, 84	2811	1. 4, 15	12. 19. 7, 49	187	15. 59, 69	26	
27	♊	51. 5, 3	0, 83	2809	4, 18	23. 4, 04	188	59, 96	27	
28	♋	50. 45, 3	0, 83	2808	4, 21	27. 0, 59	189	16. 0, 24	27	
29	♌	50. 25, 4	0, 82	2806	4, 24	30. 57, 14	190	0, 52	27	
30	♍	50. 5, 8	0, 81	2802	4, 28	34. 53, 69	191	0, 80	27	

* Subtracting 24^h, or 1 Day.

SEPTEMBER 1830.

THE MOON'S			Relative to the Corrections of the Stars' Places.		THE PLANETS'		
Right Asc. at the Time of her Transit.	Declin. at the Time of her Transit.	Semidiameter passing the Meridian in Sidercal Time.	At 9 ^h . 4 ^m , or +0 ^d . 378;		Days.	Horiz. Paral- lax.	Log. Dist. from the Earth.
h m	° /	m s	LOGARITHM OF		♂ MERCURY.		
			C	D			
21. 51	—11. 40	1. 8, 64	+9. 7502	+0. 9215	1	7, 23	0. 0781
22. 49	7. 34	8, 50	9. 7516	0. 9207	7	7, 71	0. 0507
23. 47	— 2. 57	8, 48	9. 7530	0. 9199	13	8, 32	0. 0173
0. 45	+ 1. 56	8, 60	9. 7543	0. 9192	19	9, 13	9. 9770
					25	10, 19	9. 9292
1. 44	6. 39	1. 8, 91	+9. 7557	+0. 9185	♀ VENUS.		
2. 43	10. 55	9, 36	9. 7570	0. 9178	1	6, 00	0. 1590
3. 43	14. 24	9, 74	9. 7583	0. 9171	7	5, 89	0. 1676
4. 43	16. 54	9, 89	9. 7596	0. 9164	13	5, 78	0. 1757
5. 43	18. 16	9, 63	9. 7609	0. 9158	19	5, 68	0. 1831
6. 42	18. 29	8, 88	9. 7621	0. 9152	25	5, 59	0. 1898
7. 40	17. 34	7, 70	9. 7634	0. 9146	♂ MARS.		
8. 35	15. 40	1. 6, 25	+9. 7646	+0. 9141	1	21, 73	9. 6005
9. 29	12. 59	4, 76	9. 7658	0. 9136	7	22, 19	9. 5913
10. 20	9. 41	3, 36	9. 7670	0. 9131	13	22, 40	9. 5874
11. 10	5. 57	2, 26	9. 7682	0. 9127	19	22, 29	9. 5894
♂	.....	....	9. 7694	0. 9123	25	21, 88	9. 5974
11. 58	+ 2. 4	1, 50	9. 7706	0. 9119	♂ JUPITER.		
12. 45	— 1. 53	1, 14	9. 7718	0. 9116	1	1, 89	0. 6619
13. 32	5. 43	1. 1, 18	+9. 7730	+0. 9113	7	1, 85	0. 6696
14. 19	9. 17	1, 60	9. 7741	0. 9110	13	1, 82	0. 6775
15. 7	12. 27	2, 32	9. 7753	0. 9108	19	1, 79	0. 6855
15. 56	15. 5	3, 31	9. 7765	0. 9106	25	1, 75	0. 6936
16. 46	17. 4	4, 43	9. 7776	0. 9104	♂ SATURN.		
17. 38	18. 15	5, 52	9. 7787	0. 9103	1	0, 85	1. 0073
18. 32	18. 34	6, 51	9. 7799	0. 9102	7	0, 85	1. 0060
19. 28	17. 53	1. 7, 33	+9. 7810	+0. 9101	13	0, 86	1. 0044
20. 24	16. 10	7, 83	9. 7822	0. 9101	19	0, 86	1. 0025
21. 21	13. 26	8, 19	9. 7833	0. 9101	25	0, 87	1. 0002
22. 19	9. 47	8, 41	9. 7844	0. 9101	♂ GEORGIAN.		
23. 17	5. 23	8, 66	9. 7856	0. 9102	1	0, 46	1. 2788
					11	0, 45	1. 2800
					21	0, 45	1. 2838

♂ Perig. 5^d.

♂ Apog. 20^d.

OCTOBER 1830.

Days of the Month.	Astronomical Week Days.	At Greenwich Apparent Noon.				At Greenwich Mean Noon.				Days of the Year.
		Mean Time.	Hourly Dif- ference —	Double the Sun's daily Var. in Declin —	The Sun's Semidiameter passing the Meridian in Sidereal Time.	Sidereal Time.	Mean Equinoctial Time, adding + 0 ^h 47 19 78.	The Sun's Semi- diameter.		
		h m s	s	"	m s	h m s	Days.	' "		
1	☾	23 ^h 49. 46, 4	0, 79	2798	1. 4, 32	12. 38. 50, 25	192	16. 1, 07	274	
2	♄	49. 27, 4	0, 78	2794	4, 37	42. 46, 80	193	1, 35	275	
3	☉	23 ^h 49. 8, 6	0, 77	2789	1. 4, 41	12. 46. 43, 35	194	16. 1, 62	276	
4	♅	48. 50, 2	0, 75	2784	4, 46	50. 39, 90	195	1, 90	277	
5	♂	48. 32, 1	0, 74	2778	4, 52	54. 36, 46	196	2, 17	278	
6	♂	48. 14, 4	0, 72	2770	4, 57	58. 33, 01	197	2, 45	279	
7	♄	47. 57, 1	0, 70	2763	4, 63	13. 2. 29, 56	198	2, 73	280	
8	☾	47. 40, 2	0, 68	2755	4, 69	6. 26, 11	199	3, 01	281	
9	♄	47. 23, 8	0, 67	2745	4, 76	10. 22, 67	200	3, 29	282	
10	☉	23 ^h 47. 7, 8	0, 65	2735	1. 4, 82	13. 14. 19, 22	201	16. 3, 57	283	
11	♅	46. 52, 3	0, 63	2725	4, 89	18. 15, 77	202	3, 84	284	
12	♂	46. 37, 3	0, 60	2714	4, 97	22. 12, 33	203	4, 12	285	
13	♂	46. 22, 0	0, 58	2701	5, 04	26. 8, 88	204	4, 39	286	
14	♄	46. 8, 9	0, 55	2688	5, 12	30. 5, 43	205	4, 66	287	
15	☾	45. 55, 6	0, 54	2675	5, 20	34. 1, 98	206	4, 93	288	
16	♄	45. 42, 7	0, 51	2660	5, 28	37. 58, 54	207	5, 20	289	
17	☉	23 ^h 45. 30, 5	0, 49	2645	1. 5, 37	13. 41. 55, 09	208	16. 5, 48	290	
18	♅	45. 18, 8	0, 46	2629	5, 46	45. 51, 64	209	5, 75	291	
19	♂	45. 7, 8	0, 43	2611	5, 55	49. 48, 20	210	6, 02	292	
20	♂	44. 57, 4	0, 41	2593	5, 64	53. 44, 75	211	6, 29	293	
21	♄	44. 47, 6	0, 38	2575	5, 73	57. 41, 30	212	6, 56	294	
22	☾	44. 38, 4	0, 36	2555	5, 83	14. 1. 37, 86	213	6, 83	295	
23	♄	44. 29, 8	0, 33	2534	5, 93	5. 34, 41	214	7, 10	296	
24	☉	23 ^h 44. 22, 0	0, 30	2514	1. 6, 03	14. 9. 30, 96	215	16. 7, 36	297	
25	♅	44. 14, 8	0, 27	2492	6, 13	13. 27, 52	216	7, 62	298	
26	♂	44. 8, 3	0, 24	2469	6, 23	17. 24, 07	217	7, 88	299	
27	♂	44. 2, 6	0, 21	2446	6, 34	21. 20, 62	218	8, 14	300	
28	♄	43. 57, 5	0, 18	2421	6, 45	25. 17, 18	219	8, 40	301	
29	☾	43. 53, 2	0, 15	2396	6, 56	29. 13, 73	220	8, 65	302	
30	♄	43. 49, 7	0, 12	2371	6, 67	33. 10, 28	221	8, 90	303	
31	☉	23 ^h 43. 46, 9	0, 08	2344	1. 6, 78	14. 37. 6, 84	222	16. 9, 15	304	

* Subtracting 24^h, or 1 Day.

OCTOBER 1830.

Days of the Month.	THE MOON'S			Relative to the Corrections of the Stars' Places.		THE PLANETS'		
	Right Asc. at the Time of her Transit.	Declin. at the Time of her Transit.	Semidiameter passing the Meridian in Sidereal Time.	At 9 ^h . 4 ^m , or +0 ^d . 378;		Days.	Horiz. Paral- lax.	Log. Dist. from the Earth.
				LOGARITHM OF				
				C	D			
	h m	° ' "	m s					
1	0. 16	— 0. 30	1. 9, 07	+9. 7867	+0. 9103			
2	1. 16	+ 4. 27	9, 62	9. 7878	0. 9104			
3	2. 16	9. 8	1. 10, 29	+9. 7890	+0. 9106			
4	3. 18	13. 8	10, 89	9. 7902	0. 9108			
5	4. 20	16. 10	11, 14	9. 7913	0. 9110			
6	5. 22	18. 1	10, 88	9. 7925	0. 9113			
7	6. 23	18. 37	10, 00	9. 7936	0. 9116			
8	7. 22	18. 2	8, 64	9. 7948	0. 9119			
9	8. 19	16. 25	6, 94	9. 7960	0. 9122			
10	9. 13	13. 57	1. 5, 24	+9. 7972	+0. 9126			
11	10. 4	10. 48	3, 65	9. 7984	0. 9131			
12	10. 53	7. 14	2, 40	9. 7996	0. 9135			
13	11. 42	+ 3. 24	1, 53	9. 8008	0. 9140			
14	12. 29	— 0. 34	1, 07	9. 8020	0. 9145			
15	13. 16	4. 28	1, 01	9. 8033	0. 9150			
16	♄	....	....	9. 8045	0. 9155			
17	14. 2	8. 10	1. 1, 33	+9. 8057	+0. 9161			
18	14. 50	11. 31	1, 99	9. 8070	0. 9167			
19	15. 39	14. 22	2, 82	9. 8083	0. 9173			
20	16. 29	16. 36	3, 80	9. 8096	0. 9180			
21	17. 20	18. 5	4, 75	9. 8109	0. 9187			
22	18. 12	18. 44	5, 59	9. 8122	0. 9193			
23	19. 6	18. 27	6, 27	9. 8135	0. 9200			
24	20. 1	17. 10	1. 6, 71	+9. 8149	+0. 9207			
25	20. 56	14. 56	7, 02	9. 8162	0. 9214			
26	21. 52	11. 46	7, 30	9. 8176	0. 9221			
27	22. 48	7. 48	7, 65	9. 8190	0. 9228			
28	23. 45	— 3. 12	8, 25	9. 8204	0. 9236			
29	0. 43	+ 1. 44	9, 07	9. 8218	0. 9243			
30	1. 43	6. 40	10, 14	9. 8232	0. 9251			
31	2. 45	11. 12	1. 11, 22	+9. 8247	+0. 9258			
						♿ MERCURY.		
						1	11, 50	9. 8768
						7	12, 74	9. 8322
						13	12, 95	9. 8251
						19	11, 58	9. 8739
						25	9, 65	9. 9530
						31	8, 17	0. 0251
						♀ VENUS.		
						1	5, 51	0. 1960
						7	5, 44	0. 2017
						13	5, 38	0. 2068
						19	5, 32	0. 2114
						25	5, 27	0. 2155
						31	5, 23	0. 2192
						♂ MARS.		
						1	21, 21	9. 6110
						7	20, 33	9. 6293
						13	19, 32	9. 6516
						19	18, 22	9. 6769
						25	17, 11	9. 7043
						31	16, 02	9. 7329
						♃ JUPITER.		
						1	1, 72	0. 7016
						7	1, 69	0. 7095
						13	1, 66	0. 7172
						19	1, 63	0. 7246
						25	1, 61	0. 7318
						31	1, 58	0. 7386
						♄ SATURN.		
						1	0, 87	0. 9975
						7	0, 88	0. 9946
						13	0, 88	0. 9913
						19	0, 89	0. 9878
						25	0, 90	0. 9839
						31	0, 91	0. 9799
						♅ GEORGIAN.		
						1	0, 45	1. 2872
						11	0, 44	1. 2906
						21	0, 44	1. 2943
						31	0, 44	1. 2985
♄ Perig. 3 ^d . ♄ Apog. 18 ^d . ♄ Perig. 31 ^d .								

♄ Perig. 3^d.

♄ Apog. 18^d.

♄ Perig. 31^d.

NOVEMBER 1830.

Days of the Month. Astronomical Week Days.		At Greenwich Apparent Noon.					At Greenwich Mean Noon.					Days of the Year.
		Mean Time.	Hourly Dif- ference — +	Double the Sun's daily Var. in Declin. — +	The Sun's Semidiameter passing the Meridian in Sidereal Time.	Sidereal Time.	Mean Equinoctial Time, adding +0 ^h 47 ^m 19 ^s 78.	The Sun's Semi- diameter.				
									h m s	s	"	
1	D	23 [*] 43. 44, 9	0, 05	2316	1. 6, 90	14. 41. 3, 39	223	16. 9, 40	30			
2	W	43. 43, 7	0, 02	2288	7, 01	44. 59, 95	224	9, 64	30			
3	T	43. 43, 3	0, 02	2259	7, 13	48. 56, 50	225	9, 89	30			
4	W	43. 43, 7	0, 05	2230	7, 24	52. 53, 05	226	10, 13	30			
5	T	43. 45, 0	0, 09	2200	7, 36	56. 49, 61	227	10, 37	30			
6	F	43. 47, 1	0, 13	2168	7, 48	15. 0. 46, 16	228	10, 61	31			
7	S	23 [*] 43. 50, 1	0, 16	2136	1. 7, 60	15. 4. 42, 72	229	16. 10, 84	31			
8	D	43. 54, 0	0, 20	2103	7, 72	8. 39, 27	230	11, 08	31			
9	W	43. 58, 7	0, 23	2070	7, 83	12. 35, 83	231	11, 31	31			
10	T	44. 4, 3	0, 27	2035	7, 95	16. 32, 38	232	11, 53	31			
11	W	44. 10, 8	0, 30	1999	8, 07	20. 28, 94	233	11, 75	31			
12	T	44. 18, 1	0, 34	1964	8, 19	24. 25, 49	234	11, 97	31			
13	F	44. 26, 2	0, 38	1927	8, 31	28. 22, 04	235	12, 18	31			
14	S	23 [*] 44. 35, 3	0, 41	1888	1. 8, 43	15. 32. 18, 60	236	16. 12, 39	31			
15	D	44. 45, 1	0, 45	1849	8, 55	36. 15, 15	237	12, 60	31			
16	W	44. 55, 8	0, 48	1810	8, 67	40. 11, 71	238	12, 81	32			
17	T	45. 7, 4	0, 52	1770	8, 78	44. 8, 26	239	13, 01	32			
18	W	45. 19, 8	0, 55	1729	8, 90	48. 4, 82	240	13, 21	32			
19	T	45. 33, 0	0, 59	1687	9, 01	52. 1, 38	241	13, 41	32			
20	F	45. 47, 1	0, 62	1645	9, 13	55. 57, 93	242	13, 60	32			
21	S	23 [*] 46. 1, 9	0, 65	1601	1. 9, 24	15. 59. 54, 49	243	16. 13, 79	32			
22	D	46. 17, 5	0, 68	1556	9, 35	16. 3. 51, 04	244	13, 98	32			
23	W	46. 33, 9	0, 71	1512	9, 46	7. 47, 60	245	14, 17	32			
24	T	46. 51, 0	0, 75	1467	9, 56	11. 44, 15	246	14, 35	32			
25	W	47. 8, 9	0, 77	1421	9, 67	15. 40, 71	247	14, 52	32			
26	T	47. 27, 5	0, 80	1374	9, 77	19. 37, 26	248	14, 69	33			
27	F	47. 46, 8	0, 83	1326	9, 87	23. 33, 82	249	14, 86	33			
28	S	23 [*] 48. 6, 8	0, 86	1278	1. 9, 97	16. 27. 30, 38	250	16. 15, 02	33			
29	D	48. 27, 5	0, 89	1229	10, 06	31. 26, 93	251	15, 18	33			
30	W	48. 48, 9	0, 92	1180	10, 16	35. 23, 49	252	15, 33	33			

* Subtracting 24^h, or 1 Day.

NOVEMBER 1830.

THE MOON'S			Relative to the Corrections of the Stars' Places.		THE PLANETS'		
Right Asc. at the Time of her Transit.	Declin. at the Time of her Transit.	Semidiameter passing the Meridian in Sidereal Time.	At 9 ^h . 4 ^m , or + 0 ^d . 378;		Days.	Horiz. Paral- lax.	Log. Dist. from the Earth.
			LOGARITHM		♂ MERCURY.		
			C	D			
h m	o ' "	m s			1	7, 98	0. 0354
3. 49	+ 14. 55	1. 12, 08	+ 9. 8262	+ 0. 9266	7	7, 11	0. 0855
4. 53	17. 28	12, 34	9. 8276	0. 9274	13	6, 58	0. 1196
5. 57	18. 42	11, 84	9. 8291	0. 9281	19	6, 25	0. 1419
6. 59	18. 36	10, 54	9. 8306	0. 9289	25	6, 06	0. 1554
7. 59	17. 19	8, 66	9. 8321	0. 9297	♀ VENUS.		
8. 55	15. 4	6, 62	9. 8337	0. 9304	1	5, 22	0. 2197
9. 48	12. 4	1. 4, 71	+ 9. 8352	+ 0. 9312	7	5, 18	0. 2229
10. 39	8. 34	3, 08	9. 8368	0. 9320	13	5, 15	0. 2255
11. 27	4. 46	1, 89	9. 8383	0. 9328	19	5, 13	0. 2278
12. 14	+ 0. 48	1, 18	9. 8399	0. 9335	25	5, 10	0. 2296
13. 1	- 3. 9	0, 97	9. 8415	0. 9343	♂ MARS.		
13. 47	6. 57	1, 16	9. 8431	0. 9351	1	15, 84	9. 7377
14. 34	10. 29	1, 74	9. 8448	0. 9358	7	14, 81	9. 7669
15. 23	13. 34	1. 2, 59	+ 9. 8464	+ 0. 9366	13	13, 84	9. 7963
16. 12	16. 4	3, 55	9. 8481	0. 9373	19	12, 94	9. 8254
17. 3	17. 52	4, 50	9. 8497	0. 9381	25	12, 12	9. 8540
17. 56	18. 49	5, 28	9. 8514	0. 9388	♂ JUPITER.		
18. 49	18. 51	5, 83	9. 8531	0. 9395	1	1, 58	0. 7397
19. 43	17. 56	6, 13	9. 8548	0. 9402	7	1, 55	0. 7461
20. 37	16. 4	1. 6, 21	+ 9. 8562	+ 0. 9415	13	1, 53	0. 7520
21. 31	13. 18	6, 24	9. 8599	0. 9422	19	1, 51	0. 7575
22. 25	9. 44	6, 35	9. 8617	0. 9428	25	1, 50	0. 7626
23. 20	5. 31	6, 74	9. 8635	0. 9434	♂ SATURN.		
0. 15	- 0. 50	7, 47	9. 8652	0. 9440	1	0, 91	0. 9792
1. 13	+ 4. 1	8, 57	9. 8669	0. 9446	7	0, 92	0. 9749
2. 12	8. 45	9, 95	9. 8687	0. 9451	13	0, 93	0. 9704
3. 14	12. 59	1. 11, 38	+ 9. 8705	+ 0. 9456	19	0, 94	0. 9658
4. 18	16. 17	12, 53	9. 8723	0. 9461	25	0, 95	0. 9611
5. 23	18. 21	12, 88	9. 8741	0. 9466	♂ GEORGIAN.		
♂ Apog. 14 ^d .			♂ Perig. 29 ^d .		1	0, 44	1. 2985
					11	0, 43	1. 3022
					21	0, 43	1. 3057

DECEMBER 1830.

At Greenwich Apparent Noon.					At Greenwich Mean Noon.				
Mean Time.	Hourly Dif- ference +	Double the Sun's daily Var. in Declin. — +	The Sun's Semidiameter passing the Meridian in Sidereal Time.	Sidereal Time.	Mean Equinoctial Time, adding +0 ^h . 47 1978.	The Sun's Semi- diameter.			
							h m s	s	"
23* 49. 11, 0	0, 95	1130	1. 10, 25	16. 39. 20, 04	253	16. 15, 47			
49. 33, 7	0, 97	1080	10, 34	43. 16, 60	254	15, 61			
49. 57, 1	1, 00	1029	10, 42	47. 13, 16	255	15, 75			
50. 21, 1	1, 03	977	10, 50	51. 9, 71	256	15, 89			
23* 50. 45, 7	1, 05	926	1. 10, 58	16. 55. 6, 27	257	16. 16, 02			
51. 10, 8	1, 07	874	10, 65	59. 2, 82	258	16, 15			
51. 36, 6	1, 09	821	10, 72	17. 2. 59, 38	259	16, 28			
52. 2, 8	1, 12	767	10, 78	6. 55, 94	260	16, 39			
52. 29, 6	1, 14	713	10, 85	10. 52, 49	261	16, 50			
52. 56, 8	1, 15	659	10, 91	14. 49, 05	262	16, 61			
53. 24, 4	1, 17	605	10, 96	18. 45, 61	263	16, 71			
23* 53. 52, 4	1, 18	550	1. 11, 00	17. 22. 42, 16	264	16. 16, 81			
54. 20, 8	1, 20	494	11, 05	26. 38, 72	265	16, 91			
54. 49, 6	1, 21	439	11, 09	30. 35, 28	266	17, 00			
55. 18, 6	1, 22	384	11, 13	34. 31, 83	267	17, 09			
55. 47, 9	1, 23	327	11, 16	38. 28, 39	268	17, 17			
56. 17, 4	1, 24	271	11, 19	42. 24, 95	269	17, 25			
56. 47, 1	1, 25	215	11, 21	46. 21, 50	270	17, 32			
23* 57. 17, 0	1, 25	158	1. 11, 23	17. 50. 18, 06	271	16. 17, 39			
57. 46, 9	1, 25	102	11, 24	54. 14, 61	272	17, 45			
58. 16, 9	1, 25	45	11, 25	58. 11, 17	273	17, 50			
58. 46, 9	1, 25	11	11, 26	18. 2. 7, 73	274	17, 55			
59. 16, 9	1, 25	68	11, 26	6. 4, 28	275	17, 60			
59. 46, 9	1, 25	125	11, 25	10. 0, 84	276	17, 64			
0. 0. 16, 8	1, 24	181	11, 25	13. 57, 40	277	17, 67			
0. 0. 46, 6	1, 24	238	1. 11, 24	18. 17. 53, 95	278	16. 17, 70			
1. 16, 3	1, 23	294	11, 22	21. 50, 51	279	17, 72			
1. 45, 8	1, 22	350	11, 20	25. 47, 07	280	17, 74			
2. 15, 1	1, 21	406	11, 17	29. 43, 62	281	17, 76			
2. 44, 2	1, 20	462	11, 14	33. 40, 18	282	17, 78			
3. 13, 1	1, 19	518	11, 10	37. 36, 74	283	17, 78			

* Subtracting 24^h, or 1 Day.

DECEMBER 1830.

THE MOON'S			Relative to the Corrections of the Stars' Places.		THE PLANETS'		
Right Asc. at the Time of her Transit.	Declin. at the Time of her Transit.	Semidiameter passing the Meridian in Sidereal Time.	At 9 ^h . 4 ^m , or +0 ^d . 378;		Days.	Horiz. Paral- lax.	Log. Dist. from the Earth.
			LOGARITHM OF		♂ MERCURY.		
h m	° '	m s	C	D			
6. 28	+19. 1	1. 12, 31	+9. 8759	+0. 9471	1	5, 95	0. 1633
7. 31	18. 18	10, 80	9. 8777	0. 9475	7	5, 99	0. 1604
8. 31	16. 24	8, 77	9. 8795	0. 9479	13	6, 07	0. 1543
9. 27	13. 37	6, 51	9. 8813	0. 9483	19	6, 26	0. 1412
					25	6, 58	0. 1195
					31	7, 10	0. 0866
					♀ VENUS.		
					1	5, 10	0. 2311
10. 20	10. 12	1. 4, 51	+9. 8831	+0. 9486	7	5, 08	0. 2321
11. 10	6. 23	2, 88	9. 8849	0. 9489	13	5, 07	0. 2328
11. 58	+ 2. 25	1, 77	9. 8867	0. 9492	19	5, 06	0. 2331
12. 45	- 1. 36	1, 24	9. 8885	0. 9495	25	5, 06	0. 2331
13. 32	5. 31	1, 19	9. 8903	0. 9497	31	5, 07	0. 2327
14. 18	9. 11	1, 60	9. 8921	0. 9499	♂ MARS.		
15. 6	12. 28	2, 36	9. 8940	0. 9501	1	11, 37	9. 8819
					7	10, 68	9. 9091
15. 55	15. 15	1. 3, 33	+9. 8958	+0. 9502	13	10, 05	9. 9354
16. 46	17. 22	4, 37	9. 8976	0. 9503	19	9, 48	9. 9609
♄	.....	.....	9. 8994	0. 9504	25	8, 95	9. 9856
17. 38	18. 41	1. 5, 25	9. 9012	0. 9504	31	8, 48	0. 0093
18. 32	19. 4	5, 90	9. 9030	0. 9504	♃ JUPITER.		
19. 26	18. 30	6, 24	9. 9048	0. 9504	1	1, 48	0. 7672
20. 21	16. 56	6, 20	9. 9966	0. 9504	7	1, 47	0. 7712
					13	1, 45	0. 7748
21. 15	14. 27	1. 6, 02	+9. 9084	+0. 9503	19	1, 44	0. 7778
22. 9	11. 10	5, 83	9. 9102	0. 9502	25	1, 44	0. 7803
23. 2	7. 13	5, 80	9. 9119	0. 9500	31	1, 43	0. 7823
23. 56	- 2. 48	6, 08	9. 9137	0. 9498	♄ SATURN.		
0. 50	+ 1. 53	6, 83	9. 9154	0. 9496	1	0, 96	0. 9564
1. 46	6. 34	8, 03	9. 9172	0. 9494	7	0, 97	0. 9517
2. 44	10. 56	9, 49	9. 9189	0. 9491	13	0, 98	0. 9470
					19	0, 99	0. 9425
3. 45	14. 40	1. 11, 03	+9. 9207	+0. 9488	25	1, 00	0. 9381
4. 49	17. 24	12, 13	9. 9224	0. 9484	31	1, 01	0. 9340
5. 53	18. 52	12, 53	9. 9241	0. 9480	♂ GEORGIAN.		
6. 58	18. 57	11, 93	9. 9258	0. 9476	1	0, 43	1. 3081
8. 1	17. 40	10, 42	9. 9275	0. 9472	11	0, 42	1. 3127
9. 0	15. 17	8, 39	9. 9292	0. 9467	21	0, 42	1. 3171
.....	.....	.....	9. 9309	0. 9461	31	0, 42	1. 3217

1830.	Apparent Obliquity of the Ecliptic.	Equation of the Equinoctial Points.	The ☉'s Horiz. Parallax.	Mean Long. of ☾'s ♌.
January.. 0	23. 27. 32,8	— 1,8	8,81	5. 23. 3,0
10	32,9	1,7	8,81	22. 31,3
20	33,0	1,6	8,80	21. 59,5
30	33,1	1,7	8,79	21. 27,7
February.. 9	33,2	1,8	8,77	20. 55,9
19	33,4	2,1	8,75	20. 24,2
March... 1	23. 27. 33,5	— 2,6	8,73	5. 19. 52,4
11	33,5	3,1	8,71	19. 20,6
21	33,6	3,6	8,68	18. 48,8
31	33,6	4,1	8,66	18. 17,1
April.... 10	33,5	4,5	8,64	17. 45,3
20	33,4	4,9	8,61	17. 13,5
30	33,3	5,2	8,59	16. 41,8
May..... 10	23. 27. 33,2	— 5,3	8,57	5. 16. 10,0
20	33,1	5,4	8,55	15. 38,2
30	32,9	5,4	8,54	15. 6,4
June..... 9	32,8	5,2	8,53	14. 34,7
19	32,8	5,1	8,52	14. 2,9
29	32,8	4,9	8,52	13. 31,1
July..... 9	23. 27. 32,9	— 4,8	8,52	5. 12. 59,4
19	33,0	4,7	8,52	12. 27,6
29	33,1	4,6	8,53	11. 55,8
August... 8	33,3	4,8	8,54	11. 24,0
18	33,5	5,0	8,56	10. 52,3
28	33,6	5,3	8,58	10. 20,5
Septemb.. 7	23. 27. 33,7	— 5,7	8,60	5. 9. 48,7
17	33,8	6,1	8,62	9. 16,9
27	33,8	6,5	8,65	8. 45,2
October... 7	33,8	7,0	8,67	8. 13,4
17	33,7	7,5	8,70	7. 41,6
27	33,6	7,8	8,72	7. 9,9
Novemb.. 6	23. 27. 33,5	— 8,1	8,74	5. 6. 38,1
16	33,4	8,1	8,76	6. 6,3
26	33,3	8,1	8,78	5. 34,5
Decemb.. 6	33,2	8,0	8,79	5. 2,8
16	33,2	7,9	8,80	4. 31,0
26	33,2	7,8	8,81	3. 59,2
36	33,3	7,7	8,81	3. 27,4
Jan. 1, 1830, Mean Obliq. 23°. 27'. 42'', 7				

The apparent Obliquity of the Ecliptic and the Equation of the Equinoctial Points have been calculated from Delambre's Tables, making use of the Mean Obliquity as determined from the Greenwich Observations of the Sun at the summer solstice and the mean yearly diminution of $0''.42$, arising from a comparison of the determinations of 1757 and 1827

The Sun's Mean horizontal Parallax has been assumed $8''.66$.

The Mean Longitude of the Moon's Node is from Burckhardt's Tables.

STARS

TO BE

BSERVED WITH THE MOON.

Mag.	R.A.	Declin.	1830.	Names.	Mag.	R.A.	Declin.
	H. M. S.	° ' "				H. M. S.	° ' "
6.7	0. 9. 4	+ 0.45	Jan. 30	Moon I. . .	(7)	1. 59. . .	+ 8.33
(8)	0. 23. . .	+ 1.16		ξ ¹ Ceti . . .	5	2. 4. 0	8. 3
7	0. 29. 23	- 1.26		(75) Ceti. .	6.7	2. 15. 26	8.56
6.7	0. 55. 4	+ 0.27		ξ ³ Ceti . . .	5	2. 19. 8	7.42
6.7	1. 5. 52	+ 6. 6	31	ν Arietis. .	6	2. 27. 22	+11.42
(9)	1. 19. . .	5.48		38 Arietis. .	5.6	2. 35. 42	11.44
5	1. 32. 35	4.37		Moon I. . .	(8)	2. 56. . .	12.20
5.6	1. 44. 46	2.21		(4) Ceti. . .	6.7	3. 2. 2	12.24
7	1. 53. 54	+10.12	Feb. 1	Moon I. . .	(9)	3. 53. . .	+15.18
5	2. 4. 0	8. 3		(254) Tauri. .	6.7	3. 59. 32	12.57
10)	2. 15. . .	9.57		48 Tauri. .	6	4. 6. 7	14.58
7	2. 32. 51	9.49		γ Tauri. . .	3.4	4. 10. 7	15.13
6.7	3. 2. 2	+12.24	2	κ Tauri. . .	6	4. 40. 0	+15.36
11)	3. 12. . .	13.31		Moon I. . .	(10)	4. 51. . .	17.19
5.6	3. 21. 30	12.21		γ ³ Orionis. .	6.7	5. 1. 55	15.50
4	3. 51. 16	12. 0		110 Tauri. .	7	5. 13. 49	16.32
6	3. 58. 16	+16.53	3	122 Tauri. .	6	5. 27. 12	+16.56
12)	4. 11. . .	16.14		126 Tauri. .	5.6	5. 31. 28	16.26
5.6	4. 20. 50	15.49		ν Tauri. . .	6	5. 37. 32	17.40
1	4. 26. 10	16.10		Moon I. . .	(11)	5. 49. . .	18.16
5	4. 57. 25	+18.25	4	21 Geminor. .	7	6. 22. 23	+17.54
13)	5. 11. . .	17.55		γ Geminor. .	3	6. 27. 53	16.32
6	5. 18. 9	17. 5		u Geminor. .	5.6	6. 32. 30	17.48
6	5. 27. 12	16.56		Moon I. . .	(12)	6. 47. . .	18. 8
6	6. 1. 57	+19.49	5	κ Geminor. .	5	7. 23. 54	+16.11
14)	6. 10. . .	18.28		f Geminor. .	6	7. 29. 39	18. 3
7	6. 22. 23	17.54		Moon I. . .	(13)	7. 43. . .	16.59
5.6	6. 32. 30	17.48		1 Cancri. . .	6	7. 47. 19	16.14
7	6. 46. 23	+17.57	6	29 Cancri. .	6	8. 19. 7	+14.46
7	6. 50. 4	16.10		Moon I. . .	(14)	8. 37. . .	14.57
6	6. 58. 37	16.12		54 Cancri. .	6.7	8. 41. 32	15.59
15)	7. 8. . .	17.54		o ¹ Cancri. .	6	8. 47. 45	15.58
6	7. 47. 20	+16.14	7	ω Leonis. . .	6.7	9. 19. 20	+ 9.48
6	7. 51. 48	16.55		Moon II. . .	(15)	9. 31. . .	12.10
16)	8. 6. . .	16.19		18 Leonis. .	6	9. 37. 13	12.35
6	8. 19. 7	14.46		ν Leonis. . .	5.6	9. 49. 4	13.15
6.7	8. 33. 49	+13.17	8	π Leonis. . .	4.5	9. 51. 13	+ 8.51
5	8. 49. 11	12.31		ι Leonis. . .	5	9. 58. 52	10.50
17)	9. 0. . .	13.53		Moon I. . .	(16)	10. 21. . .	8.53
6	9. 5. 50	15.39		49 Leonis. .	6	10. 26. 7	9.32
3	14. 41. 29	-15.20	9	δ Leonis. . .	5	10. 51. 47	+ 4.32
2.3	15. 7. 52	8.45		ρ ² Leonis. .	5.6	10. 58. 14	2.53
25)	15. 26. . .	14. 1		Moon II. . .	(17)	11. 9. . .	5.14
2	15. 55. 34	-19.20		80 Leonis. .	7	11. 17. 5	4.48
26)	16. 18. . .	16.19	16	m Scorpil. .	5	16. 31. 45	-17.24
2.3	17. 0. 38	15.30		Moon II. . .	(24)	16. 48. . .	17. 7
2.3	17. 0. 38	-15.30		η Ophiuchi	2.3	17. 0. 38	15.30
27)	17. 14. . .	17.51					
4	18. 3. 36	21. 6					

STARS TO BE OBSERVED WITH THE MOON.

1830.	Names.	Mag.	R.A.	Declin.	1830.	Names.	Mag.	R.A.	Declin.
			H. M. S.	° ' "				H. M. S.	° ' "
Feb. 17	3 Ophiuchi	3.4	17. 11. 35	-24. 49	Mar. 20	α ² Capricor.	3	20. 8. 37	-13. 4
	Moon II. ...	(25)	17. 43. ...	18. 8		β ² Capricor.	3.4	20. 11. 27	15. 19
	μ ¹ Sagitt...	3.4	18. 3. 36	21. 6		Moon II. ...	(27)	21. 10. ...	13. 20
18	μ ¹ Sagitt...	3.4	18. 3. 36	-21. 6	31	Moon I. ...	(8)	7. 8. ...	+17. 47
	Moon II. ...	(26)	18. 41. ...	18. 10		κ Geminor.	5	7. 23. 54	16. 11
	σ Sagitt...	3	18. 44. 43	26. 30		f Geminor.	6	7. 29. 39	18. 3
Mar. 1	71 Tauri...	5.6	4. 16. 39	+15. 14		1 Cancri...	6	7. 47. 20	16. 14
	85 Tauri...	6	4. 22. 9	15. 29	Apr. 1	1 Cancri...	6	7. 47. 20	+16. 14
	Moon I. ...	(8)	4. 34. ...	16. 42		r Cancri...	6	7. 51. 48	16. 55
	K Tauri...	6	4. 40. 0	15. 36		Moon I. ...	(9)	8. 3. ...	16. 18
2	115 Tauri...	5.6	5. 17. 15	+17. 48		29 Cancri...	6	8. 19. 7	14. 46
	119 Tauri...	5.6	5. 22. 15	18. 28	2	Δ ¹ Cancri...	6.7	8. 33. 49	+13. 17
	Moon I. ...	(9)	5. 32. ...	18. 0		α ¹ Cancri...	6	8. 46. 38	12. 16
	N Tauri...	6	5. 37. 32	17. 40		Moon I. ...	(10)	8. 55. ...	14. 1
3	21 Geminor.	7	6. 22. 23	+17. 54		(35) Leonis	7	9. 8. 37	12. 13
	Moon I. ...	(10)	6. 29. ...	18. 12	3	κ Leonis...	6	9. 22. 50	+10. 28
	G Geminor.	6	6. 40. 2	16. 23		o Leonis...	4	9. 32. 4	10. 40
	(270) Gemin.	7	6. 46. 23	17. 57		Moon I. ...	(11)	9. 46. ...	11. 6
4	o Geminor.	6	6. 58. 37	+16. 12		Δ Leonis...	5	9. 58. 52	10. 49
	51 Geminor.	5	7. 3. 36	16. 26	4	16 Sextant.	6	10. 0. 20	+ 7. 0
	λ Geminor.	4.5	7. 8. 19	16. 50		z Leonis...	6	10. 14. 6	7. 24
	Moon I. ...	(11)	7. 25. ...	17. 22		Moon I. ...	(12)	10. 35. ...	7. 44
5	1 Cancri...	6	7. 47. 20	+16. 14		σ Leonis...	5.6	10. 51. 56	7. 1
	r Cancri...	6	7. 51. 48	16. 55	5	p ² Leonis...	5.6	10. 58. 14	+ 2. 53
	s Cancri...	6	7. 59. 12	14. 8		q Leonis...	5.6	11. 8. 32	2. 57
	Moon I. ...	(12)	8. 19. ...	15. 38		r Leonis...	5.6	11. 15. 19	2. 20
6	Δ ¹ Cancri.	6	8. 37. 36	+12. 44		Moon I. ...	(13)	11. 22. ...	4. 5
	α ² Cancri...	5	8. 49. 11	12. 31	6	(213) Virgin.	7	11. 52. 20	- 0. 49
	κ Cancri...	5.6	8. 58. 33	11. 21		(230) Virgin.	7	11. 57. 18	- 2. 11
	Moon I. ...	(13)	9. 11. ...	13. 9		Moon I. ...	(14)	12. 9. ...	+ 0. 15
7	10 Sextantis	6	9. 47. 25	+ 9. 44		γ ¹ Virginis.	4	12. 33. 3	- 0. 31
	Moon I. ...	(14)	10. 1. ...	10. 4	7	(111) Virginis	6.7	12. 22. 55	- 4. 7
	b ¹ Leonis...	6	10. 16. 17	9. 39		(143) Virginis	6.7	12. 29. 59	3. 26
	49 Leonis...	6	10. 26. 7	9. 32		(183) Virginis	6.7	12. 38. 47	5. 22
8	z Leonis...	6	10. 14. 6	+ 7. 24		Moon I. ...	(15)	12. 55. ...	3. 33
	x Sextantis	7	10. 23. 28	- 5. 31	8	77 Virginis	7	13. 24. 32	- 6. 45
	35 Sextant.	7	10. 34. 31	5. 38		m Virginis	5.6	13. 32. 42	7. 50
	Moon I. ...	(15)	10. 50. ...	6. 34		Moon II. ...	(16)	13. 43. ...	7. 14
9	p ² Leonis...	5.6	10. 58. 14	+ 2. 53		(270) Virginis	7	13. 51. 7	7. 20
	q Leonis...	5.6	11. 8. 32	- 2. 57	9	λ Virginis...	4	14. 9. 55	-12. 35
	r Leonis...	5.6	11. 15. 19	2. 20		2 Libræ...	6	14. 14. 17	10. 56
	Moon II. ...	(16)	11. 39. ...	2. 49		Moon II. ...	(17)	14. 31. ...	10. 37
10	(213) Virginis	7	11. 52. 20	- 0. 49		ξ ¹ Libræ...	6	14. 45. 10	11. 12
	(230) Virginis	7	11. 57. 18	2. 11	16	Moon II. ...	(24)	20. 44. ...	-14. 44
	Moon II. ...	(17)	12. 26. ...	1. 0		β Aquarii...	3	21. 22. 36	6. 19
	γ ¹ Virginis.	4	12. 33. 3	0. 31		δ Capricor.	3.4	21. 37. 39	16. 54
11	f Virginis...	6.7	12. 28. 2	- 4. 54	17	β Aquari...	3	21. 22. 36	- 6. 19
	(183) Virginis	6.7	12. 38. 47	- 5. 22		γ Capricor.	4	21. 30. 40	17. 25
	θ Virginis...	4.5	13. 1. 9	4. 38		Moon II. ...	(25)	21. 41. ...	11. 34
	Moon II. ...	(18)	13. 12. ...	4. 47	18	α Aquarii...	3	21. 57. 3	- 1. 8
18	Moon II. ...	(25)	19. 12. ...	-17. 41		Moon II. ...	(26)	22. 39. ...	7. 34
	α ² Capricor.	3	20. 8. 37	13. 4		δ Aquarii...	3	22. 45. 37	16. 43
	β ² Capricor.	3.4	20. 11. 27	15. 19	May 1	Moon I. ...	(10)	10. 19. ...	+ 9. 0
19	δ Sagitt...	3.4	18. 10. 6	-29. 53		48 Leonis...	5.6	10. 25. 55	7. 50
	σ Sagitt...	3	18. 44. 43	26. 30		o Sextant...	6	10. 37. 14	7. 16
	Moon II. ...	(26)	20. 11. ...	16. 3		χ Leonis...	4.5	10. 56. 14	8. 15

STARS TO BE OBSERVED WITH THE MOON.

1830.	Names.	Mag.	R. A.		Declin.	1830.	Names.	Mag.	R. A.		Declin.
			H. M. S.	° ' "					H. M. S.	° ' "	
May 2	<i>d</i> Leonis ..	5	10.51.47	+ 4.32		June 5	χ Ophiuchi	5	16.17.10	-18. 4	
	Moon I. ..	(11)	11. 7. . .	5.24			Moon I. ..	(16)	16.26. . .	16.42	
	80 Leonis..	7	11.17. 5	4.48			(232) Oph.	6	16.46.13	16.32	
	δ Virginis..	5.6	11.51.14	4.36			σ Ophiuchi.	6	16.51.55	18.38	
3	(77) Leonis	7	11.19.13	- 0.46		6	(236) Scorpii	6.7	16.47. 5	-19.16	
	ν Leonis ..	4.5	11.28.15	+ 0. 7			σ Ophiuchi.	6	16.51.55	18.38	
	Moon I. ..	(12)	11.53. . .	1.35			(297) Oph.	6.7	16.58.23	17.23	
	κ Virginis..	6	12. 9.57	0.10			Moon II. . .	(17)	17.21. . .	18.10	
4	(143) Virginis	6.7	12.29.59	- 3.26		7	(356) Sagitt.	7	17.57. 0	-21.27	
	Moon I. ..	(13)	12.39. . .	2.16			μ^1 Sagittar.	3.4	18. 3.36	21. 6	
	38 Virginis	6	12.44.29	2.38			(25) Clys. So.	7	18. 7.30	18.31	
	δ^1 Virginis.	6	12.50.54	2.54			Moon II. . .	(18)	18.16. . .	18.40	
5	Moon I. ..	(14)	13.26. . .	- 6. 2		14	Moon II. . .	(25)	0.47. . .	+ 2.21	
	88 Virginis	7	13.39.25	5.59			γ Ceti	3	2.34.30	2.31	
	(238) Virginis	7	13.46. 4	7.13			α Ceti.	2.3	2.53.24	3.25	
	(270) Virginis	7	13.51. 7	7.20		15	Moon II. . .	(26)	1.44. . .	+ 6.58	
6	(287) Virginis	7	13.55.22	- 8.26			γ Ceti	3	2.34.30	2.31	
	η Virginis..	6.7	13.59.57	9.31			α Ceti. . . .	2.3	2.53.24	3.25	
	κ Virginis..	4	14. 3.50	9.29		July 1	Moon I. ..	(12)	15.15. . .	-13.15	
	Moon I. ..	(15)	14.13. . .	9.34			ζ^1 Libræ ..	6	15.21. 5	16. 1	
7	μ Libræ. . .	5.6	14.40. 1	-13.26			η Libræ. . .	4.5	15.26. 2	14.13	
	Moon { I. . .	(16)	15. 1.43	12.43			η Libræ. . .	4.5	15.34.31	15. 7	
	II. . .		15. 3.48			2	θ Libræ. . .	4.5	15.44.10	-16.13	
	α^2 Libræ. . .	6	15.13.34	14.31			49 Libræ. . .	5.6	15.50.48	16. 2	
	γ Libræ. . .	4.5	15.26. 2	14.13			Moon I. . .	(13)	16. 6. . .	15.48	
8	ξ^1 Libræ. . .	6	15.23.19	-16.16			ϕ Ophiuchi	4.5	16.21.25	16.14	
	η Libræ. . .	4.5	15.34.31	15. 7		3	χ Ophiuchi	5	16.17.10	-18. 4	
	θ Libræ. . .	4.5	15.44.10	16.13			μ Scorpii..	5	16.31.45	17.24	
	Moon II. . .	(17)	15.54. . .	15.20			(251) Oph.	7	16.49.51	17.58	
9	ν Scorpii ..	4	16. 2. 8	-19. 1			Moon I. ..	(14)	16.59. . .	17.38	
	χ Ophiuchi	5	16.17.10	18. 4		4	Moon I. ..	(15)	17.53. . .	-18.35	
	μ Scorpii ..	5	16.31.45	17.24			μ^1 Sagittar.	3.4	18. 3.36	21. 6	
	Moon II. . .	(18)	16.46. . .	17.15			(25) Clys. So.	7	18. 7.30	18.31	
15	α Aquarii..	3	21.57. 3	- 1. 9			(82) Sagittar.	6	18.20.12	18.50	
	Moon II. . .	(24)	22.17. . .	9.24		5	ν Sagittarii	6	18.39.35	-20.31	
	λ Aquarii..	4	22.43.44	8.29			Moon I. ..	(16)	18.50. . .	18.32	
16	α Aquarii..	3	21.57. 3	- 1. 9			(316) Sagitt.	7	18.59.46	20. 4	
	Moon II. . .	(25)	23.13. . .	5. 8			ν Sagittarii	5	19. 7.41	19.15	
ne 1	Moon I. ..	(12)	13.10. . .	- 4.34		6	α^2 Sagitt. . .	5.6	19.11.56	-18.37	
	66 Virginis	6	13.15.43	4.16			[1294] Sagit.	6	19.18.12	18.41	
	ν^2 Virginis.	6	13.23. 8	5.22			(176) Sagitt.	7	19.26.31	19.13	
	(174) Virginis	7	13.35. 4	4.38			Moon II. . .	(17)	19.49. . .	17.25	
2	(238) Virginis	7	13.46. 4	- 7.13		7	β^2 Capricor.	3.4	20.11.27	-15.19	
	Moon I. ..	(13)	13.57. . .	8.13			(194) Capri.	7	20.25.54	17. 6	
	κ Virginis..	4	14. 3.50	9.29			(240) Capri.	6.7	20.30.59	16.43	
	2 Libræ. . .	6	14.14.17	10.56			Moon II. . .	(18)	20.46. . .	15.14	
3	λ Virginis.	4	14. 9.55	-12.35		13	Moon II. . .	(24)	2.22. . .	+ 9.39	
	2 Libræ. . .	6	14.14.17	10.56			μ Ceti.	4	2.35.45	9.24	
	(127) Libræ	6.7	14.28. 0	11.35			α Ceti.	2.3	2.53.24	3.25	
	Moon I. ..	(14)	14.45. . .	11.35		14	Moon II. . .	(25)	3 21. . .	+13.22	
4	α^2 Libræ ..	6	15.13.34	-14.31			γ Tauri. . .	3.4	4.10. 7	15.13	
	ξ^1 Libræ. . .	6	15.18.41	16. 7			α Tauri. . .	1	4.26.10	16.10	
	ξ^4 Libræ. . .	6	15.23.19	16.16		15	γ Tauri. . .	3.4	4.10. 7	+15.13	
	Moon I. ..	(15)	15.34. . .	14.27			Moon II. . .	(26)	4.21. . .	16.15	
							α Tauri. . .		4.26.10	16. 1	

STARS TO BE OBSERVED WITH THE MOON.

1830.	Names.	Mag.	R. A.	Decln.	1830.	Names.	Mag.	R. A.	Decln.
			H. M. S.	° ' "				H. M. S.	° ' "
July 30	χ Ophiuchi	5	16. 17. 10	-18. 4	Sept. 3	π Piscium..	5.6	23. 39. 12	- 3.49
	Moon I. ..	(12)	16. 36. ..	16. 49		Moon II. ..	(17)	23. 48. ..	2.57
	(251) Oph.	7	16. 49. 51	17. 58		γ Piscium..	5	23. 53. 6	3.58
	η Ophiuchi.	2.3	17. 0. 38	15. 30		4 Ceti.....	7	23. 59. 1	3.30
31	(236) Scorpii	6.7	16. 47. 5	-19. 16	4	(33) Piscium	6.7	0. 9. 4	+ 0.45
	σ Ophiuchi.	6	16. 51. 55	18. 38		ε Piscium..	6	0. 16. 41	1. 0
	ρ Ophiuchi	4.5	17. 10. 49	20. 55		(131) Piscium	7	0. 28. 45	2. 12
	Moon I. ..	(13)	17. 30. ..	18. 11		Moon II. ..	(18)	0. 46. ..	1. 56
Aug. 1	(25) Cyp. So	7	18. 7. 30	-18. 31	10	γ Geminor.	3	6. 27. 53	+16.32
	(21) Sagittar.	6	18. 15. 13	20. 37		ε Geminor.	3	6. 33. 28	25. 17
	Moon I. ..	(14)	18. 25. ..	18. 37		Moon II. ..	(24)	6. 43. ..	18. 29
	τ Sagittar.	6	18. 39. 35	20. 31	11	γ Geminor.	3	6. 27. 53	+16.32
2	δ Sagittar..	5	19. 7. 41	-19. 15		ε Geminor.	3	6. 33. 28	25. 17
	ρ² Sagittar..	5.6	19. 11. 46	18. 37		Moon II. ..	(25)	7. 41. ..	17. 34
	Moon I. ..	(15)	19. 23. ..	17. 59	25	Moon I. ..	(10)	18. 31. ..	-18. 34
	57 Sagittar.	5.6	19. 42. 19	19. 28		τ Sagittar..	6	18. 39. 35	20. 31
3	Moon I. ..	(16)	20. 21. ..	-16. 16		(316) Sagittar.	7	18. 59. 46	20. 4
	(194) Capri.	7	20. 25. 54	17. 6		δ Sagittar..	5	19. 7. 41	19. 15
	(240) Capri.	6.7	20. 30. 59	16. 43	26	26 δ Sagitt.	5	19. 7. 41	-19. 15
	(310) Capri.	6.7	20. 39. 41	18. 39		ρ¹ Sagittar.	5	19. 11. 49	18. 10
4	z² Aquarii.	6	20. 51. 46	-14. 11		[1294] Sagit.	6	19. 18. 12	18. 42
	σ Capricor.	5	21. 6. 20	15. 52		Moon I. ..	(11)	19. 27. ..	17. 53
	Moon II. ..	(17)	21. 21. ..	13. 31	27	β² Capricor.	3.4	20. 11. 27	-15. 19
	(177) Capri.	6.7	21. 24. 59	14. 14		Moon I. ..	(12)	20. 23. ..	16. 10
5	ε² Capricor.	6.7	21. 37. 12	-10. 3		(240) Capri.	6.7	20. 30. 59	16. 43
	36 Aquarii.	7	22. 0. 24	9. 1		(310) Capri.	6.7	20. 39. 41	18. 39
	(46) Aquarii.	6	22. 7. 54	9. 53	28	z² Aquarii.	6	20. 51. 46	-14. 11
	Moon II. ..	(18)	22. 19. ..	9. 51		σ Capricor.	5	21. 6. 20	15. 52
12	γ Tauri...	3.4	4. 10. 7	+15. 13		Moon I. ..	(13)	21. 20. ..	13. 26
	α Tauri...	1	4. 26. 10	16. 10		δ² Capri...	6	21. 32. 18	14. 48
	Moon II. ..	(25)	5. 2. ..	17. 28	29	Moon I. ..	(14)	22. 18. ..	- 9.47
13	α Tauri...	1	4. 26. 10	+16. 10		(142) Aquarii	7	22. 25. 9	10. 29
	Moon II. ..	(26)	6. 2. ..	18. 29		64 Aquarii.	6.7	22. 30. 19	10. 54
	μ Geminor.	3	6. 12. 40	22. 36		λ Aquarii...	4	22. 43. 44	8. 29
29	Moon I. ..	(12)	18. 56. ..	-18. 21	30	μ² Aquarii	7	22. 46. 22	- 5.53
	δ Sagittarii	5	19. 7. 41	19. 15		h¹ Aquarii.	6	22. 56. 18	8. 36
	ρ² Sagittar.	5.6	19. 11. 56	18. 37		φ Aquarii..	5	23. 5. 31	6. 58
	[1294] Sagit.	6	19. 18. 12	18. 41		Moon I. ..	(15)	23. 16. ..	5. 23
30	Moon I. ..	(13)	19. 53. ..	-17. 10	Oct. 1	(270) Piscium	6.7	23. 56. 21	- 1.27
	π Capricor.	5	20. 17. 35	18. 46		Moon I.	(16)	0. 15. ..	0.30
	ν Capricor.	5	20. 30. 22	18. 44		(120) Piscium	6.7	0. 26. 50	1. 26
	(310) Capri.	6.7	20. 39. 41	18. 39		m Ceti....	5	0. 44. 20	2. 4
31	β² Capricor.	3.4	20. 11. 27	-15. 19	2	(252) Piscium	6.7	0. 51. 1	+ 5.34
	τ¹ Capricor.	6	20. 27. 49	15. 44		ε Piscium..	5	0. 59. 37	4. 45
	Moon I. ..	(14)	20. 51. ..	14. 55		55 Ceti....	6.7	1. 3. 48	1. 34
	σ Capricorni	5	21. 6. 20	15. 52		Moon II. ..	(17)	1. 17. ..	4. 27
Sept. 1	λ Capricor.	5.6	21. 37. 22	-12. 9	3	ξ¹ Ceti....	5	2. 4. 0	+ 8. 3
	Moon I. ..	(15)	21. 50. ..	11. 40		Moon II. ..	(18)	2. 17. ..	9. 8
	ε Aquarii..	6	22. 1. 32	12. 24		(118) Ceti...	6.7	2. 26. 5	6. 44
	42 Aquarii.	6	22. 7. 41	13. 40		(155) Arietis	7	2. 32. 51	9. 49
2	ν Aquarii..	6	22. 34. 21	- 7. 51	9	Moon II. ..	(24)	8. 20. ..	+16. 25
	Moon II. ..	(16)	22. 50. ..	7. 34		α Leonis...	1	9. 59. 18	12. 48
	82 Aquarii.	6	22. 53. 43	7. 29		γ Leonis...	2	10. 10. 35	20. 42
	φ Aquarii..	5	23. 5. 31	6. 58	10	Moon II.	(25)	9. 14. ..	+13. 57
						α Leonis...	1	9. 59. 18	12. 48
						γ Leonis...	2	10. 10. 35	20. 42

STARS TO BE OBSERVED WITH THE MOON.

1830.	Names.	Mag.	R. A.			Decliu.	1830.	Names.	Mag.	R. A.			Declia.
			H. M. S.			O /				H. M. S.			O /
11	Moon II... (26)		10. 5. ...			+10. 48	Nov. 22	Moon I. ... (9)		21. 30. ...			-13. 18
	γ Leonis... 2		10. 10. 35			20. 42		μ Capricor. 5		21. 44. 1			14. 21
	β Leonis... 2.3		11. 40. 23			15. 31		33 Aquarii. 4.5		21. 57. 15			14. 41
23	Moon I. ... (8)		19. 5. ...			-18. 27		42 Aquarii. 6		22. 7. 41			13. 40
	♂ Sagittar. 5.6		19. 11. 56			18. 37	23	Moon I. ... (10)		22. 24. ...			- 9. 44
	[1294] Sagitt. 6		19. 18. 12			18. 42		64 Aquarii. 6.7		22. 30. 19			10. 54
	(176) Sagitt. 7		19. 26. 31			19. 13		70 Aquarii. 6		22. 39. 34			11. 27
24	Moon I. ... (9)		20. 0. ...			-17. 10		χ ¹ Aquarii. 5.6		23. 6. 59			10. 1
	σ Capricor. 5.6		20. 9. 35			19. 38	24	82 Aquarii. 6		22. 53. 43			- 7. 29
	ρ Capricor. 5		20. 19. 9			18. 22		φ Aquarii... 5		23. 5. 31			6. 58
	(194) Capri. 7		20. 25. 54			17. 6		96 Aquarii. 6		23. 10. 35			6. 3
25	Moon I. ... (10)		20. 55. ...			-14. 56		Moon I. ... (11)		23. 19. ...			5. 31
	σ Capricor... 5		21. 6. 20			15. 52	25	(282) Ceti. 7		0. 0. 0			- 3. 10
	λ Aquarii... 6		21. 14. 53			13. 36		Moon I. ... (12)		0. 14. ...			0. 50
	(154) Aquarii 7		21. 21. 21			15. 2		(120) Piscium 6.7		0. 26. 50			1. 26
26	λ Capricor. 5.6		21. 37. 22			-12. 9		m Ceti 5		0. 44. 20			2. 4
	Moon I. ... (11)		21. 51. ...			11. 46	26	Moon I. ... (13)		1. 12. ...			+ 4. 1
	37 Aquarii. 6		22. 1. 27			11. 39		95 Piscium 7		1. 18. 51			4. 28
	42 Aquarii. 6		22. 7. 41			13. 40		ν Piscium... 5		1. 32. 35			4. 37
27	Moon I. ... (12)		22. 47. ...			- 7. 48		ξ Piscium... 5.6		1. 44. 46			2. 21
	81 Aquarii. 6		22. 52. 33			7. 58	27	Moon I. ... (14)		2. 11. ...			+ 8. 45
	φ Aquarii... 5		23. 5. 31			6. 58		ζ ² Ceti 5		2. 19. 8			7. 42
	[1596] Aqua. 7		23. 11. 55			6. 50		(118) Ceti.. 6.7		2. 26. 5			6. 44
28	(96) Piscium 6.7		23. 20. 44			- 5. 27		μ Ceti 4		2. 35. 45			9. 24
	ω ¹ Piscium 7.7		23. 25. 25			2. 11	28	σ Arietis... 6		2. 42. 6			+14. 23
	Moon I. ... (13)		23. 44. ...			3. 12		(4) Ceti... 6.7		3. 2. 2			12. 24
	ρ Piscium... 5		23. 49. 58			4. 30		Moon I. ... (15)		3. 13. ...			12. 59
29	(33) Piscium 6.7		0. 9. 4			+ 0. 45		f ¹ Tauri... 5.6		3. 21. 30			12. 21
	i Piscium... 6		0. 16. 41			1. 0	29	Moon I. ... (16)		4. 17. ...			+16. 17
	(131) Piscium 7		0. 28. 45			2. 12		85 Tauri... 6		4. 22. 9			15. 29
	Moon I. ... (14)		0. 42. ...			1. 44		89 Tauri... 7		4. 28. 25			15. 41
30	μ Piscium... 5		1. 21. 17			+ 5. 16		K Tauri... 6		4. 40. 0			15. 36
	(123) Piscium 6.7		1. 27. 10			6. 46	30	i ¹ Tauri... 5.6		4. 41. 26			+18. 33
	ν Piscium... 5		1. 32. 35			4. 37		l Tauri... 6.7		4. 47. 34			16. 53
	Moon I. ... (15)		1. 42. ...			6. 40		m Tauri... 5		4. 57. 25			18. 25
31	ξ ¹ Arietis... 6		2. 15. 43			+ 9. 50		Moon II... (17)		5. 24. ...			18. 21
	ν Arietis... 6		2. 27. 22			11. 42	Dec. 1	N ¹ Tauri... 6		5. 37. 32			+17. 40
	85 Ceti... 6		2. 33. 20			10. 1		χ ² Orionis. 6		5. 44. 53			19. 43
	Moon II... (16)		2. 46. ...			11. 12		χ ⁴ Orionis. 5.6		5. 53. 24			19. 41
Nov. 1	f ¹ Tauri... 5.6		3. 21. 30			+12. 21		Moon II... (18)		6. 29. ...			19. 1
	(103) Tauri 7		3. 29. 49			15. 59	8	β Virginis. 3.4		11. 41. 51			+ 2. 43
	e Tauri... 6		3. 38. 57			10. 37		Moon II... (25)		12. 46. ...			- 1. 36
	Moon II... (17)		3. 50. ...			14. 55		α Virginis.. 1		13. 16. 15			-10. 16
8	α Leonis... 1		9. 59. 18			+12. 48	9	δ Virginis.. 3.4		12. 47. 3			+ 4. 19
	Moon II... (24)		10. 40. ...			8. 34		α Virginis.. 1		13. 16. 15			-10. 16
	β Virginis. 3.4		11. 41. 51			2. 43		Moon II... (26)		13. 33. ...			- 5. 31
9	α Leonis... 1		9. 59. 18			+12. 48	10	α Virginis.. 1		13. 16. 15			-10. 16
	Moon II... (25)		11. 28. ...			4. 46		Moon II... (27)		14. 19. ...			9. 11
	β Virginis. 3.4		11. 41. 51			2. 43		α ² Libræ .. 3		14. 41. 29			15. 20
10	β Virginis. 3.4		11. 41. 51			+ 2. 43	20	Moon I. ... (7)		22. 8. ...			-11. 10
	Moon II... (26)		12. 15. ...			0. 48		σ Aquarii... 5		22. 21. 39			11. 33
	δ Virginis. 3.4		12. 47. 3			4. 19		64 Aquarii. 6.7		22. 30. 19			10. 54
21	β ² Capricor 3.4		20. 11. 27			-15. 19		K Aquarii.. 6		22. 44. 31			12. 31
	(145) Capri. 6.7		20. 19. 18			17. 59	21	N Aquarii.. 6		22. 34. 21			- 7. 51
	(194) Capri. 7		20. 25. 54			17. 6		λ Aquarii... 4		22. 43. 44			8. 28
	Moon I. ... (8)		20. 36. ...			16. 4		81 Aquarii. 6		22. 52. 33			7. 1
								Moon I. ... (8)		23. 1. ...			7. 1

STARS TO BE OBSERVED WITH THE MOON.

1830.	Names.	Mag.	R. A.		Declin.	1830.	Names.	Mag.	R. A.		Declin.
			H. M. S.	° ' "					H. M. S.	° ' "	
Dec. 22	<i>n</i> Piscium..	5.6	23.39.12	—	3.42	Dec. 27	<i>δ</i> Tauri. . .	5	4.15.39	+17.32	
	24 Piscium	6.7	23.44.12	4.	6		(99) Tauri. .	5.6	4.20.50	15.49	
	Moon I. . .	(9)	23.55. .	2.48	<i>α</i> Tauri . . .		1	4.26.10	16.10		
	5 Ceti.....	7	23.59.30	3.24	Moon I. . .		(14)	4.48. .	17.24		
23	(33) Piscium	6.7	0. 9. 4	+	0.45	28	122 Tauri..	6	5.27.12	+16.56	
	<i>t</i> Piscium..	6	0.16.41	1.	0		126 Tauri..	5.6	5.31.28	16.26	
	(131) Piscium	7	0.28.45	2.12	<i>N</i> Tauri... ..		6	5.37.32	17.40		
	Moon I. . .	(10)	0.49. .	1.53	Moon I. . .		(15)	5.52. .	18.52		
24	<i>μ</i> Piscium..	5	1.21.17	+	5.16	29	21 Geminor.	7	6.22.23	+17.54	
	(123) Piscium	6.7	1.27.10	6.46	<i>u</i> Geminor.		5.6	6.32.30	17.48		
	<i>ν</i> Piscium..	5	1.32.35	4.37	(270) Gemin.		7	6.46.23	17.57		
	Moon I. . .	(11)	1.45. .	6.34	Moon II. . .		(16)	6.59. .	18.57		
25	(85) Arietis.	6	2.17.39	+	9.48	30	<i>k</i> Geminor.	5	7.23.54	+16.11	
	<i>u</i> Arietis ..	6	2.27.22	11.42	<i>g</i> Geminor.		6	7.36.16	18.55		
	85 Ceti . . .	6	2.33.20	10. 1	(261) Cancri		7	7.48.49	16.58		
	Moon I. . .	(12)	2.43. .	10.56	Moon II. . .		(17)	8. 2. .	17.40		
26	Moon I. . .	(13)	3.44. .	+	14.40						
	<i>λ</i> Tauri ...	4	3.51.16	12. 0							
	48 Tauri... ..	6	4. 6. 7	14.58							
	<i>γ</i> Tauri ...	3.4	4.10. 7	15.13							

The Right Ascensions of the Stars are set down for the beginning of the Year: the Moon's Place for the time of her Transit at Greenwich.

CORRECTIONS

FOR

THE ECLIPSES OF JUPITER'S SATELLITES,

Given in the Nautical Almanacs of 1830, on account of the Corrections of the Epochs of DELAMBRE'S Tables.

1830.	I. SATELLITE		II. SATELLITE		III. SATELLITE		IV. SATELLITE	
	at		at		at		at	
	Immers.	Emers.	Immers.	Emers.	Immers.	Emers.	Immers.	Emers.
January ..	subt.. 7	.....	add.. 1	.....	subt.31	add.33	.....	.....
February..	..... 8	.....	..... 0	.....	....31	....32	.....	.....
March....	..... 8	.....	subt.. 1	.....	....31	....32	add { 174	sub { 196
April.....	..... 6	.....	..... 1	.....	....30	....30	... { 75	... { 94
May.....	..... 5	.....	..... 2	.....	....29	....28	....41	....49
June.....	..... 3	.....	..... 2	.....	....28	....27	....40	....38
July.....	..... 0	subt.. 1	..... 2	subt.. 4	....27	....25	....39	....30
August...	.....	add.. 1	.....	....4	....25	....24	....37	....23
September	.....	..... 2	.....	....2	....23	....23	....36	....15
October ..	.....	..... 1	.....	....1	....21	....21	....37	.... 7
November	.....	subt.. 1	.....	add.. 1	....18	....19	....38	.... 1
December	.....	..... 3	.....	..... 1	....15	....16	....39	add. 5

—These Corrections are adapted to the middle of the month; except it be for the fourth Satellite in March and April 1830, where the numbers relate to each Eclipse.

*Corrections of the Longitudes and Right Ascensions of the Sun,
given in the Nautical Almanac for 1830.*

Month and Day, 1830.	Corr. of Long.	Corr. of A. R.	Month and Day, 1830.	Corr. of Long.	Corr. of A. R.
January.... 1	+3,7	+0,27	July..... 5	+5,9	+0,42
6	3,8	0,28	10	6,9	0,49
11	4,8	0,34	15	7,1	0,50
16	5,4	0,38	20	6,2	0,43
21	5,1	0,35	25	5,2	0,36
26	4,0	0,27	30	5,0	0,34
31	3,2	0,21			
February... 5	3,5	0,23	August.... 4	5,9	0,40
10	4,6	0,30	9	6,8	0,45
15	5,3	0,34	14	6,8	0,44
20	4,9	0,31	19	5,8	0,38
25	3,9	0,24	24	4,8	0,31
			29	4,8	0,30
March..... 2	3,4	0,21	September 3	5,7	0,35
7	3,9	0,24	8	6,5	0,40
12	5,0	0,31	13	6,3	0,39
17	5,8	0,35	18	5,3	0,33
22	5,4	0,33	23	4,4	0,27
27	4,4	0,27	28	4,4	0,27
April..... 1	3,9	0,24	October... 3	5,4	0,33
6	4,6	0,28	8	6,1	0,38
11	5,7	0,36	13	5,9	0,37
16	6,4	0,40	18	4,8	0,30
21	5,9	0,37	23	4,0	0,25
26	4,9	0,32	28	4,2	0,27
May..... 1	4,5	0,29	November.. 2	5,2	0,34
6	5,2	0,35	7	5,9	0,39
11	6,4	0,43	12	5,6	0,38
16	6,9	0,47	17	4,6	0,31
21	6,3	0,44	22	3,8	0,26
26	5,2	0,37	27	4,2	0,29
31	4,9	0,35			
June..... 5	5,7	0,41	December.. 2	5,2	0,37
10	6,8	0,49	7	6,0	0,43
15	7,1	0,51	12	5,6	0,40
20	6,3	0,46	17	4,5	0,32
25	5,3	0,38	22	3,8	0,28
30	5,1	0,37	27	4,3	0,31
			31	5,2	0,38

These Corrections have been calculated, independently, for every one of the days set down in the Table. The Corrections in Longitude are accurate: those in Right Ascension ought to include a term depending on the Sun's Latitude, which is neglected, because it is quite insensible. The data, which are the foundation of the calculation, are nearly the same as those given in my paper in the Phil. Trans. for 1828.

It is supposed, that the Right Ascensions of the Stars, with which the Sun is compared, are formed by adding 0,2 to the Right Ascensions for 1821, as given in MASKELYNE's Catalogue, and bringing them up to 1830, by the annual Variation, corresponding to this increased Right Ascension, at the mean interval. G. B. AIRY.

A TABLE

For Reducing Sexagesimal Time to the Decimal Fraction of a Day, and the Reverse.

HOURS.		MINUTES.		SECONDS.		TENTHS.	
Hours.	Fraction of a Day.	Minutes.	Fraction of a Day.	Minutes.	Fraction of a Day.	Seconds.	Fraction of a Day.
0	,000000	0	,000000	30	,0208333	0	,000000
1	,0416667	1	,0006944	31	,0215278	1	,000116
2	,0833333	2	,0013889	32	,0222222	2	,000231
3	,1250000	3	,0020833	33	,0229167	3	,000347
4	,1666667	4	,0027778	34	,0236111	4	,000463
5	,2083333	5	,0034722	35	,0243056	5	,000579
6	,2500000	6	,0041667	36	,0250000	6	,000694
7	,2916667	7	,0048611	37	,0256944	7	,000810
8	,3333333	8	,0055556	38	,0263889	8	,000926
9	,3750000	9	,0062500	39	,0270833	9	,001042
10	,4166667	10	,0069444	40	,0277778	10	,001157
11	,4583333	11	,0076389	41	,0284722	11	,001273
12	,5000000	12	,0083333	42	,0291667	12	,001389
13	,5416667	13	,0090278	43	,0298611	13	,001505
14	,5833333	14	,0097222	44	,0305556	14	,001620
15	,6250000	15	,0104167	45	,0312500	15	,001736
16	,6666667	16	,0111111	46	,0319444	16	,001852
17	,7083333	17	,0118056	47	,0326389	17	,001968
18	,7500000	18	,0125000	48	,0333333	18	,002083
19	,7916667	19	,0131944	49	,0340278	19	,002199
20	,8333333	20	,0138889	50	,0347222	20	,002315
21	,8750000	21	,0145833	51	,0354167	21	,002431
22	,9166667	22	,0152778	52	,0361111	22	,002546
23	,9583333	23	,0159722	53	,0368056	23	,002662
		24	,0166667	54	,0375000	24	,002778
		25	,0173611	55	,0381944	25	,002894
		26	,0180556	56	,0388889	26	,003009
		27	,0187500	57	,0395833	27	,003125
		28	,0194444	58	,0402778	28	,003241
		29	,0201389	59	,0409722	29	,003356

HUNDRETHS

Hund. Fraction of a Day.

EXAMPLES.

1. Direct Operation.

Given 22^h 4, 9166667
 57^m , 0395833
 22^s , 0002546
 , 1 , 0000012
 , 02 , 0000002
 22^h, 57^m, 22^s, 12 = ... , 9565060

2. Reverse Operation.

Given 4, 956506
 Next less , 9166667 = 22^h
 Remain , 0395833
 Next less , 0395833 = ... 57^m
 Remain , 0002560
 Next less , 0002546 = 22^s
 Remain , 0000014
 Next less , 0000012 = , 1
 Remain , 0000002 = , 02
 Equivalent time reverse is: 22^h, 57^m, 22^s, 12

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FOR THE YEAR

1831.

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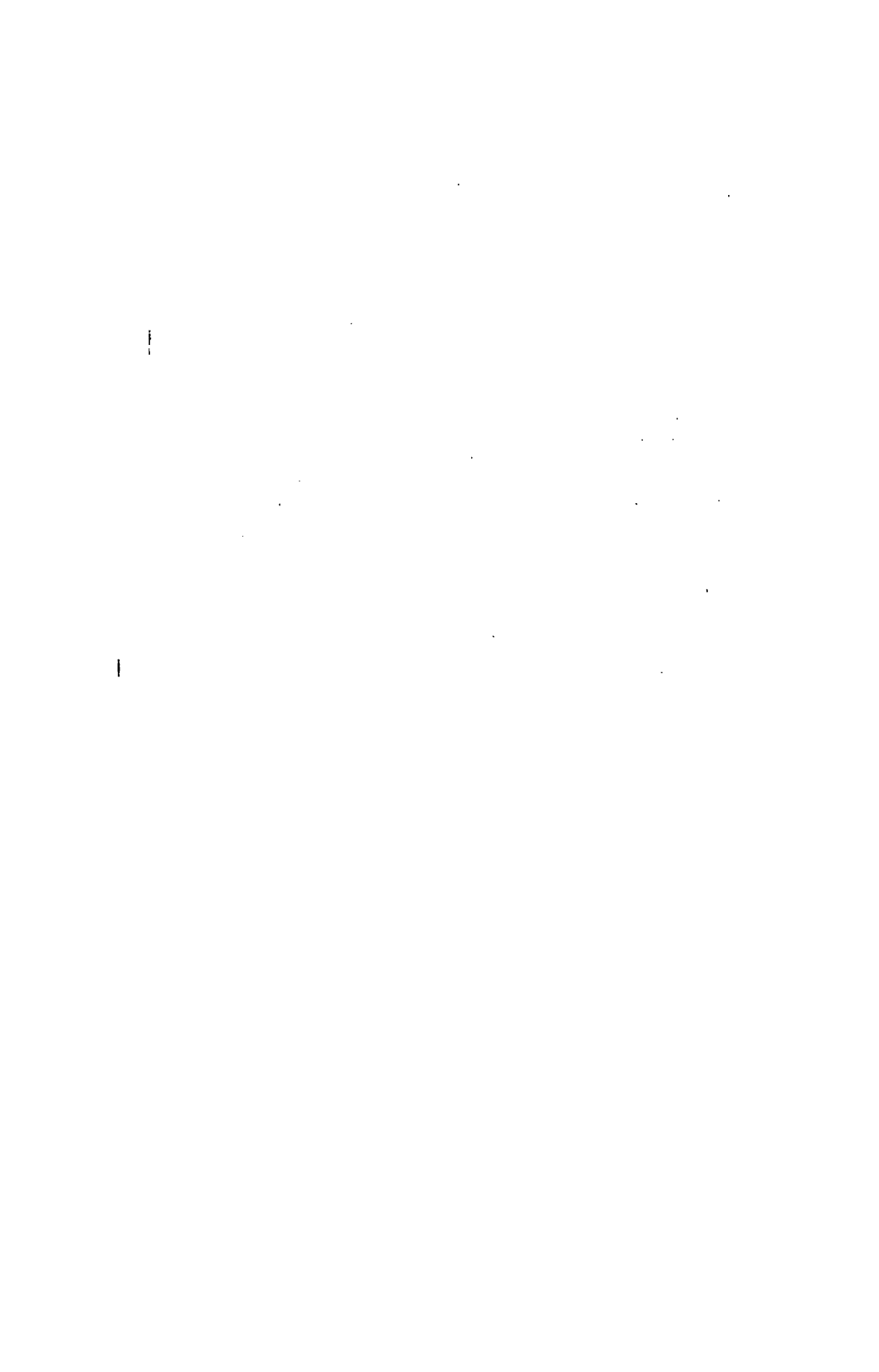
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ADVERTISEMENT.

THE Tables, contained in the following pages, are chiefly intended to facilitate the computation of time; the determination of longitudes by lunar observations, especially by the method of stars culminating with the moon; and the reduction of the observed to the mean places of the stars; to which are also annexed the values of the horizontal parallax and the logarithmic distance of each of the principal planets, which the practical astronomer requires for the reduction of his observations, and which the navigator may have occasion to employ in the determination of his longitude by their observed distances from the moon.

The third column of the first page of each month shows the time which ought to be marked by a mean solar clock at Greenwich, at the instant of the sun's centre passing the meridian, or, as it is called, of apparent noon; and therefore serves to set a mean clock or watch by the sun's transit, or by a dial, directly. It corresponds in fact to the column headed "Equation of Time" in the Nautical Almanac; but the values are all rendered positive by subtracting the negative ones from 24^h, and thus destroying any possibility of mistake from change of sign or error of its application by the observer. For places out of the meridian of Greenwich, the numbers of this column require to be corrected by a proportional part of their daily difference, according to the longitude. The amount of this correction for each hour of longitude is given, and is to be *added or subtracted*, according to the direction at the head of the column. For Example: required the mean time of the sun's transit on 24th February, 1831, at a place 5^h West of Greenwich. Since noon in West longitude happens *later* than at Greenwich, the horary correction must be taken out between the 24th and 25th and therefore its value is 0^s.388; and as it occurs *below* the line of division of the column where the precept changes, the lower heading — must be used indicating that the correction 5×0.388 is to be applied negatively, or subtracted, so that the time required is 0^h.13^m.35^s.4 — 1^s.9 = 0^h.13^m.33^s.5. — A mistake in taking out the horary correction for the day elapsed, instead of that to come, it is to be observed, may occasionally produce an error of nearly four-tenths of a second in the result.

The fourth column in the 1st page of each month furnishes the value of δ in the well-known formulæ $x = \delta \cdot \tan. D \frac{T}{1440 \tan. 7\frac{1}{2} T} - \delta \cdot \tan. L \frac{T}{440 \sin. 7\frac{1}{2} T}$ where x represents the correction in seconds of time to be applied to the mean of the two observed times of equal altitude of the sun to obtain the time of its meridional passage. D = the declination, at the time of passage on the day of observation, + if North, — if South. T = the number of hours and decimals elapsed between the observation of equal altitudes. L = the latitude of the place of observation, + if North, — if South.

Column six in the first page of each month, entitled the sidereal time at mean noon on the meridian of Greenwich, is that which ought to be shown by the sidereal clock of the Royal Observatory, on each day, at the instant that a clock regulated to mean solar time shows exactly $0^h. 0^m. 0^s$. The use of this column is to facilitate the reduction of sidereal to mean solar time, and vice versa, by the help of the table commonly used for that purpose, called a Table of Acceleration of Sidereal on Mean Solar Time, and the corresponding Table of Retardation of Mean on Sidereal Time, according to the following Rule:—Convert the interval from the mean noon immediately preceding, from the denomination given to that required; and if mean time be required, the result will at once be that which the clock should show; but if sidereal time be that sought, the result must be added to the sidereal time shown in the column in question for the preceding noon:

Example:—To convert $21^h. 10^m. 0^s$ sidereal time, Jan. 1, 1831, into mean time, for the meridian of Greenwich.

Sidereal time given.....	21. 10. 0
Sidereal time at mean noon, January 1.....	18. 41. 33, 29
Interval in sidereal time.....	2. 28. 26, 71
Retardation of mean on sidereal time for the interval.....	— 24, 32
Mean time required.....	2. 28. 2, 39

Which is the interval elapsed since mean noon, expressed in mean time; and therefore the time which ought to be shown by a mean time clock.

Vice versa, to convert $2^h. 28^m. 2^s, 39$ mean time, January 1, 1828, into sidereal time for the same meridian.

Mean interval from mean noon, January 1.....	2. 28. 2, 39
Acceleration of sidereal on mean time for the interval...	+ 24, 32
	2. 28. 26, 71
Sidereal time at mean noon, January 1.....	18. 41. 33, 29
Sidereal time required.....	21. 10. 0, 00

Which ought to be the reading-off of the sidereal clock at the instant in question.

If the place of observation be not on the meridian of Greenwich, the sidereal time, set down in column six, must be corrected by the addition of $9^s, 8565$ for each hour (and proportional parts for the minutes and seconds) of Longitude, if the place be to the West of Greenwich, but by its subtraction if to the East. Thus, in $9^h. 10^m. 8^s$ of West longitude, the sidereal time at mean noon, January 1, instead of being, as in the foregoing Example, $18^h. 41^m. 33^s, 29$ must be corrected by $+ 1^m. 30^s, 37$, giving $18^h. 43^m. 3^s, 66$ for the time to be used, instead of that set down in the column.

The sidereal time here intended is that in common use among astronomers, and expresses the actual hour-angle from the meridian, westwards, of the true equinoctial point at the moment of observation, and it is calculated by the formula,

$$\text{Sid. T.} = \frac{\odot\text{'s mean long.} - 16''.5. \sin. \mathcal{D}\text{'s } \Omega - 0''.917. \sin. 2 \odot\text{'s true long.}}{15}$$

is therefore affected by the equation of the equinoxes; and is not, strictly speaking, a *mean* or uniformly increasing quantity. It ought, therefore, to be termed *apparent sidereal time* in the same manner as apparent solar time is reckoned from the actual arrival of the sun's centre on the meridian; and in the same manner, as mean solar time is reckoned from the arrival of an imaginary sun, moving uniformly with its mean velocity, so *mean sidereal time* whose expression would be simply $\frac{\odot\text{'s mean longitude}}{15}$ would be reckoned from the transit of (not the *true*, but) the *mean* equinoctial point. The smallness of the fluctuations to which a clock, regulated to *apparent* sidereal time compared with one regulated to mean sidereal time, is subject, being at the utmost only 2'.3 in a period of nineteen years, has prevented the practical inconvenience of this from being felt—no clock being sufficiently perfect to go during so long a period without frequent re-adjusting; and as the corrections applied by astronomers to the observed right ascensions of all objects are adapted to this supposed irregularity in the rate of the clock, the mean right ascensions thence deduced come out correct. It has, therefore, not been thought necessary in this instance to depart from received usage, however theoretically objectionable such a mode of counting time may appear, since a change in this respect would involve the necessity of a corresponding change in all tables of nutation. The conversion of solar into sidereal time, and *vice versa*, is thus performed without reference to the "equation of time," with which it has in fact nothing to do, and whose employment in the hands of less practised computers often leads to mistakes.

Column seven is headed "Mean Equinoctial Time." It contains the values of the fraction $\frac{\odot\text{'s mean longitude at mean noon.}}{\odot\text{'s mean daily motion in longitude;}}$ the longitude being reckoned from the place of the *mean* vernal equinox, corrected by the very minute secular equation of the equinoxes, and the mean effect of precession being included in the mean daily motion. Or, which comes to the same thing, it gives the time elapsed since the instant of the mean vernal equinox, in mean solar days and fractions of a day.

The unit of equinoctial time is the *mean* equinoctial year, or the average of all the times elapsing from the sun's quitting the mean vernal equinox (that is, the equinox corrected by the equation of the equinoxes) and returning to it again, during a whole period of the revolution of the apsides of the earth's orbit, as referred to the moveable equinox, or 20984 years. It is assumed, in these computations, that this year is equal to 365.242264 mean solar days, and may be regarded as divided into 365 equal and one smaller part; or, if preferred, into decimals of its whole magnitude, or any other way that convenience may dictate.

The fraction at the head of the column expresses the part of a day, which is to be supposed to be annexed to each line of the column of days to express the equinoctial time at mean noon at Greenwich on the civil day corresponding. Thus, at mean Greenwich noon on the 5th Jan. 1831, the equinoctial time is 288^d.471978; or, which is the same thing, 0^d.789809960 from the *mean* time of the vernal equinox for 1830; and on the 30th March, 1831, it will be 7^d.5^h.30^m.47^s.3, or 7^d.229714. These fractions are readily converted into each other by the assistance of a Table, p. 38.

The use of the column of equinoctial time is to afford a uniformity which shall be independent of the difference of meridians, and of all localities in the sun's motion, and shall thus save the necessity, when speaking the time of any event's happening, of mentioning at the same time the place where it was observed or computed. Thus, it is the same thing to say that a comet passed its perihelion on the 5th Jan. 1831, at 5^h. 47^m. 28^s. 17th. 6^m. 39^s. 0 equinoctial time; but the former dates mean time at Greenwich, at 5^h. 56^m. 21^s. 6 mean time at Paris, 1830^r. 288^d. 17^h. 6^m. 39^s. 0 equinoctial time; but the former dates mean time at Greenwich and Paris enter as elements of the expression, whereas the latter expresses the interval elapsed since an epoch common to all the world, and identifiable independently in all localities. By this means, all ambiguities in the reckoning of time are avoided. Thus, an antipode of Greenwich, could any one suddenly transport himself from Greenwich, at noon, on the 1st Jan. 1830, he would on his arrival find his time midnight, December 31, 1829, had he travelled westward; but on January 1, 1831, if eastwards; while the actual date, according to the reckoning, if reduced to equinoctial time, would be one and the same day, 1830^r. 284^d. 11^h. 19^m. 38^s. 9.

To find the equinoctial time corresponding to any proposed instant of mean solar time at any given place by this column, reduce into time the longitude of the place reckoned East or West from Greenwich, and add or subtract it from the mean time at Greenwich on the same day, civil reckoning, + mean time at the place, \mp longitude of place $\left\{ \begin{array}{l} - \text{if East.} \\ + \text{if West.} \end{array} \right\}$

Thus for 5^h. 56^m. 21^s. 6 mean time at Paris, January 5, 1830, the longitude of Paris from Greenwich being 9^m. 21^s. 5 E. we have equinoctial time = 1830^r. 288^d. 11^h. 19^m. 38^s. 9 + 5^h. 56^m. 21^s. 6 - 9^m. 21^s. 5 = 1830^r. 288^d. 11^h. 19^m. 38^s. 9.

The mean instant of the vernal equinox, in the sense in which it is understood, or point of departure, or epoch of equinoctial time, marked by no phenomenon, and being only discoverable by calculation, becomes necessary to state what is here meant by it, in order that it may be known how far the epoch now assumed is to be regarded as accurate. In Delambre's Solar Tables having been employed in all the computations relative to the solar theory in the Nautical Almanac and the present supplementary Tables, are assumed as the basis of calculation; and the longitudes, at the commencement of each year, deduced, by calculation, sufficiently intricate and laborious, from a comparison of an immense number of observations, are assumed as correct. Nearly so they undoubtedly are: but as it is impossible they should be perfectly so, their error can only be a constant quantity) must be admitted as the very small *arbitrary constant*, by which the epoch of equinoctial time used differs from the real instant of the *mean* vernal equinox in the year 0 (A. D.) This instant is at present unknown, nor can it ever be precisely determined; neither is it of any consequence that it should be so, if we only adhere to it, and make all future determinations of equinoctial time from the same epoch, whatever improvements future researches may produce into the solar tables, or at least not to change it but on mature consideration, and by general consent.

All attempts to agree upon and introduce among astronomers a *first meridian* have failed, from the want of any point on the earth sufficiently prominent to command all suffrages. The system of

time is equivalent to the establishment of what may be termed an itinerant first meridian, which remains constant during one whole year, and then shifts its place, per saltum, on the globe, by 0,242264 of a circumference $= 5^h. 48^m. 51^s, 6$ to the eastward; and thus, in the lapse of ages, corresponds, at some time or other, to any proposed meridian. In the interval between the vernal equinoxes of 1830 and 1831 (or in the equinoctial year 1830+) this meridian corresponded to the longitude $11^h. 19^m. 38^s, 9$ West of Greenwich; and in 1831 + (E.T.) it will correspond to $5^h. 30^m. 47^s, 3$ W.

Equinoctial time may be reckoned backwards as well as forwards to any extent, provided due attention be bestowed on the secular variation of precession, which, increasing nearly as the square of the time, although extremely minute at first, becomes at length sensible; and which, as its laws and its period are at present unknown, must be regarded as affecting the *mean* equinox in the form of a correction: when we speak, therefore, of the *mean* equinox, we must be understood, in a limited sense, as referring to that element, divested by computation of the periodical inequalities arising from solar and lunar nutation; and, moreover, of the yet more considerable inequality arising from the motion of the earth's perigee; of which more presently.

Equinoctial dates antecedent to the Christian era may be set down in two ways:—Thus, to denote that an event happened $180^d. 5^h$ before the mean time of the vernal equinox, immediately antecedent to that of year A. D. 0 we may write its date either $-1^y. -180^d. 5^h$ E. T., thus reckoning the days backwards, and inverting their order of succession in the calendar; or we may preserve the same order, by writing it $-2^y. +185^d. 0^h. 48^m. 51^s, 6$ E. T. The Gregorian calendar being founded on the mean tropical year, the instant of the *mean* vernal equinox will always fall on the same day of the month of March, within one unit more or less, arising from the redundant or deficient portions of a day, produced by the incommensurability of the day and the year. The same would be the case with the moment of the true arrival of the sun at the equinox, were it not for the progressive motion of the earth's perigee, which combined with the retrograde motion of the equinoctial points, in the period of 20984 years, brings the equinox alternately to coincide with the swiftest and slowest points of its elliptical motion. The true equinoxes in this long period, therefore, succeed each other at unequal intervals, and the extent of fluctuation thereby caused in the place of the true equinox in the calendar amounts to an interval equal to that in which the sun would describe an arc of $3^{\circ}. 50'. 53'', 6$ (twice the equation of the centre) with its mean motion, that is to say, about four days. In the application of equinoctial time therefore to chronological reckoning in which the intervals bear already some sensible proportion to the vast period above mentioned, this fluctuation must be borne in mind, and must be allowed for whenever the actual arrival of the sun at the equinox is under consideration. The same distinction in fact between mean and apparent time holds good in the equinoctial, as well as in the solar and sidereal reckoning, but on a more extended scale. If we date from the true instant of the equinox, we reckon by apparent; if from the mean, where all the known periodical fluctuations are allowed for, by mean time. With a view to the conversion of mean into apparent equinoctial time, the Table, p. viii has been computed.

The remaining columns of these Tables stand in need of little expla-

nation. The column containing the sidereal interval, in which the Moon's semidiameter passes the meridian, affords data for the reduction of observations of stars culminating with the moon, as well as for comparisons in right ascension of the moon with other stars, such as those of the Greenwich Catalogue, which may be occasionally resorted to as means of determining longitudes; while the columns, containing the right ascension and declination at the time of transit, enable the British observer to set his transit instrument beforehand to the place of the moon, nearly enough for the purpose of observation.

The columns devoted to the corrections of the stars' places contain the logarithms of four ephemeral quantities A, B, C, & D, by whose aid, when used in conjunction with the other elements, stated in the Preface to the "New Tables for facilitating the computation of Precession, Aberration, and Nutation, of 2881 Principal Fixed Stars," published by the Astronomical Society of London, any observation of the stars of that collection may be immediately reduced.

NOTE.—Mr. POISSON makes the tropical year = $365^d.242219 - 10^4.000006655$, being the number of centuries *after* 1750; if we employ this value, the date in Page vii will stand $-27 + 185^d.0^h.48^m.58^s.7$ E. T.

TABLE

For Finding the Time of the True Equinoxes, within Half an Hour, for the last Year of each Century.

DATE.	☉ enters τ before Mean Equinox.	☉ enters \triangle after Mean Equinox.		DATE.	☉ enters τ before Mean Equinox.	☉ enters \triangle after Mean Equinox.
—800	1 ^d .71	1 ^d .68		+600	1 ^d .98	1 ^d .97
700	1. 74	1. 71		700	1. 98	1. 97
600	1. 77	1. 74		800	1. 98	1. 98
				900	1. 99	1. 98
500	1. 79	1. 77		1000	1. 99	1. 98
400	1. 82	1. 80		1100	1. 98	1. 98
300	1. 84	1. 82		1200	1. 98	1. 98
200	1. 87	1. 85		1300	1. 98	1. 98
—100	1. 89	1. 87		1400	1. 97	1. 97
0	1. 90	1. 89		1500	1. 96	1. 96
+100	1. 92	1. 90		1600	1. 95	1. 95
200	1. 94	1. 92		1700	1. 94	1. 94
300	1. 95	1. 93		1800	1. 92	1. 93
400	1. 96	1. 95		1900	1. 91	1. 92
500	1. 97	1. 96		2000	1. 89	1. 90

FORMULAS AND TABLES EMPLOYED.

1.—The mean time of apparent noon is taken from the equation of time in the Nautical Almanac.

2.—Double the sun's daily variation in declination is equal to the sun's motion in declination from the preceding to the following noon.

3.—The sidereal interval of the sun's semidiameter passing the meridian has been calculated from BESSEL's Tables.

4.—The sidereal time is computed from DELAMBRE's Tables, by reducing into time the sun's mean longitude, increased by $6''.0$, as determined from the Greenwich Observations, by Professor AIRY; and then diminished by $16''.5 \sin. \odot$'s Ω , and by $0''.917 \sin. 2 \odot$'s longitude.

5.—The fraction of equinoctial time is computed from the equinoctial time in the Supplement to the Nautical Almanac for 1828, subtracting $0^d.242264$ for each year.

6.—The sun's semidiameter has been calculated from BESSEL's Tables.

7.—The moon's right ascension and declination have been computed from the Nautical Almanac.

8.—The time required for the passage of the moon's semidiameter over the meridian has been computed from the Nautical Almanac, with due regard to her motion in right ascension.

9.—The logarithms subservient to the correction of the places of the stars are derived from the method of Professor BESSEL, as arranged by Mr. BAILY, in a paper published by the Astronomical Society. The correction of the right ascension is $\Delta \alpha = aA + bB + cC + dD$; and that of the declination $\Delta \delta = a'A + b'B + c'C + d'D$; in which

$$A = -18''.677 \cos \odot.$$

$$B = -20''.360 \sin \odot.$$

$$C = t - 0.025 \sin 2 \odot - 0.344 \sin \Omega + 0.004 \sin 2 \Omega.$$

$$D = -0''.545 \cos 2 \odot - 9''.250 \cos \Omega + 0''.090 \cos 2 \Omega.$$

$$a = + \cos \alpha. \sec \delta.$$

$$a' = \tan \omega. \cos \delta. - \sin \alpha. \sin \delta.$$

$$b = + \sin \alpha. \sec \delta.$$

$$b' = \cos \alpha. \sin \delta.$$

$$c = + 46''.021 + 20''.043 \sin \alpha. \tan \delta.$$

$$c' = 20''.043 \cos \alpha.$$

$$d = + \cos \alpha. \tan \delta.$$

$$d' = - \sin \alpha.$$

\odot , the sun's true longitude; Ω , the mean longitude of the moon's node; t , the fraction of a year, elapsed from the instant at which the sun's mean longitude was 281° ; and ω , the mean obliquity of the ecliptic. The catalogue of the Astronomical Society contains the logarithms of a, b, c, d , and a', b', c', d' , for each star; and the logarithms of A, B, C , and D are here exhibited for the instant of mean midnight at Greenwich, calculated agreeably to the above formulæ.

10.—The apparent obliquity of the ecliptic, and the equation of equinoctial points, were deduced from the co-efficients of nutation employed by DELAMBRE in his solar tables; and the place of the moon's node is from BURCKHARDT's Tables.

11.—The parallaxes and logarithmic distances of the planets are as computed with the assistance of Professor SCHUMACHER's Tables, and of the Nautical Almanac: the earth's semidiameter, or the sun's horizontal parallax, as seen from the sun's mean distance from the earth, being $8''.66$.

12.—The lunar stars are the same as selected for the Jahrbuch of 1837

JANUARY 1831.

Days of the Month.	Astronomical Week Days.	At Greenwich Apparent Noon.				At Greenwich Mean Noon.			
		Mean Time.	Hourly Dif- ference +	Double the Sun's daily Var. in Declin. +	The Sun's Semidiameter passing the Meridian in Sidereal Time.	Sidereal Time.	Mean Equinoctial Time, adding + 0 ^d .471978.	The Sun's Semi- diameter.	
		h m s	s	"	m s	h m s	Days.	' "	
1	h	0. 3. 41, 7	1, 179	573	1. 11, 06	18. 41. 33, 29	284	16. 17, 78	
2	⊙	0. 4. 10, 0	1, 163	628	1. 11, 01	18. 45. 29, 84	285	16. 17, 77	
3	☽	4. 37, 9	1, 150	683	10, 96	49. 26, 40	286	17, 76	
4	♂	5. 5, 5	1, 133	738	10, 91	53. 22, 95	287	17, 74	
5	♀	5. 32, 7	1, 121	792	10, 85	57. 19, 51	288	17, 72	
6	♂	5. 59, 6	1, 096	845	10, 79	19. 1. 16, 07	289	17, 70	
7	♀	6. 25, 9	1, 079	899	10, 73	5. 12, 62	290	17, 67	
8	h	6. 51, 8	1, 058	952	10, 66	9. 9, 18	291	17, 64	
9	⊙	0. 7. 17, 2	1, 038	1004	1. 10, 59	19. 13. 5, 73	292	16. 17, 60	
10	☽	7. 42, 1	1, 013	1056	10, 51	17. 2, 29	293	17, 55	
11	♂	8. 6, 4	0, 992	1108	10, 44	20. 58, 85	294	17, 50	1
12	♀	8. 30, 2	0, 963	1159	10, 36	24. 55, 40	295	17, 44	1
13	♂	8. 53, 3	0, 938	1209	10, 27	28. 51, 96	296	17, 38	1
14	♀	9. 15, 8	0, 908	1258	10, 18	32. 48, 52	297	17, 32	1
15	h	9. 37, 6	0, 883	1307	10, 09	36. 45, 07	298	17, 25	1
16	⊙	0. 9. 58, 8	0, 854	1357	1. 10, 00	19. 40. 41, 63	299	16. 17, 17	1
17	☽	10. 19, 3	0, 825	1404	9, 90	44. 38, 18	300	17, 08	1
18	♂	10. 39, 1	0, 792	1451	9, 80	48. 34, 74	301	16, 99	17
19	♀	10. 58, 1	0, 758	1498	9, 70	52. 31, 30	302	16, 90	18
20	♂	11. 16, 3	0, 729	1543	9, 60	56. 27, 85	303	16, 80	19
21	♀	11. 33, 8	0, 696	1588	9, 50	20. 0. 24, 41	304	16, 70	20
22	h	11. 50, 5	0, 658	1632	9, 39	4. 20, 96	305	16, 60	21
23	⊙	0. 12. 6, 3	0, 629	1676	1. 9, 28	20. 8. 17, 52	306	16. 16, 50	22
24	☽	12. 21, 4	0, 596	1719	9, 17	12. 14, 07	307	16, 39	23
25	♂	12. 35, 7	0, 558	1761	9, 06	16. 10, 63	308	16, 27	24
26	♀	12. 49, 1	0, 525	1802	8, 95	20. 7, 18	309	16, 15	25
27	♂	13. 1, 7	0, 492	1843	8, 84	24. 3, 74	310	16, 02	26
28	♀	13. 13, 5	0, 458	1883	8, 72	28. 0, 29	311	15, 88	27
29	h	13. 24, 5	0, 425	1921	8, 61	31. 56, 85	312	15, 74	28
30	⊙	0. 13. 34, 7	0, 392	1960	1. 8, 49	20. 35. 53, 40	313	16. 15, 60	29
31	☽	13. 44, 1	0, 358	1998	8, 38	39. 49, 96	314	15, 46	30
		13. 52, 7		2034	8, 26	43. 46, 51	315	15, 31	31

For Mean Time of passage subt. 0^d.19

JANUARY 1831.

Days of the Month.	THE MOON'S			At Greenwich Mean Midnight.			
	Right Asc.	Declin.	Semidiameter	Relative to the			
	at	at	passing	Corrections of the Places of the Fixed Stars,			
	the Time	the Time	the	LOGARITHMS			
	of her	of her	Meridian	OF			
	Transit.	Transit.	in Sidereal	A	B	C	D
	h m	° '	m s				
1	9. 56	+12. 5	1. 6, 35	-0. 5482	+1. 3009	-9. 1671	+0. 946'
2	10. 49	8. 20	1. 4, 39	-0. 5865	+1. 2993	-9. 1574	+0. 946'
3	11. 39	4. 18	2, 89	0. 6216	1. 2976	9. 1474	0. 945'
4	12. 27	+ 0. 12	1, 90	0. 6539	1. 2958	9. 1373	0. 945'
5	13. 14	- 3. 49	1, 49	0. 6838	1. 2938	9. 1269	0. 944'
6	14. 1	7. 38	1, 59	0. 7117	1. 2916	9. 1164	0. 943'
7	14. 48	11. 6	2, 12	0. 7378	1. 2893	9. 1056	0. 943'
8	15. 37	14. 7	2, 97	0. 7623	1. 2869	9. 0946	0. 942'
9	16. 27	16. 31	1. 4, 05	-0. 7853	+1. 2843	-9. 0835	+0. 941'
10	17. 18	18. 12	5, 13	0. 8070	1. 2816	9. 0721	0. 940'
11	18. 12	19. 1	6, 03	0. 8276	1. 2787	9. 0605	0. 939'
12	19. 7	18. 54	6, 59	0. 8471	1. 2756	9. 0487	0. 939'
13	6	.....	.....	0. 8656	1. 2724	9. 0366	0. 938'
14	20. 2	17. 40	6, 75	0. 8833	1. 2690	9. 0242	0. 937'
15	20. 57	15. 29	6, 61	0. 9001	1. 2655	9. 0116	0. 936'
16	21. 52	12. 26	1. 6, 25	-0. 9161	+1. 2617	-8. 9987	+0. 935'
17	22. 46	8. 38	5, 95	0. 9315	1. 2579	8. 9856	0. 934'
18	23. 40	- 4. 20	5, 89	0. 9462	1. 2538	8. 9721	0. 933'
19	0. 34	+ 0. 17	6, 18	0. 9602	1. 2496	8. 9583	0. 932'
20	1. 29	4. 55	6, 88	0. 9737	1. 2452	8. 9442	0. 931'
21	2. 25	9. 19	7, 97	0. 9867	1. 2406	8. 9298	0. 930'
22	3. 23	13. 12	9, 28	0. 9991	1. 2358	8. 9150	0. 929'
23	4. 23	16. 17	1. 10, 52	-1. 0111	+1. 2308	-8. 8999	+0. 927'
24	5. 25	18. 16	11, 35	1. 0226	1. 2257	8. 8843	0. 926'
25	6. 28	19. 2	11, 44	1. 0336	1. 2203	8. 8684	0. 925'
26	7. 30	18. 28	10, 68	1. 0443	1. 2147	8. 8521	0. 924'
27	8. 31	16. 39	9, 25	1. 0546	1. 2090	8. 8353	0. 923'
28	9. 29	13. 50	7, 45	1. 0644	1. 2030	8. 8180	0. 922'
29	10. 24	10. 18	5, 59	1. 0740	1. 1968	8. 8002	0. 920'
30	11. 16	6. 21	1. 3, 96	-1. 0832	+1. 1903	-8. 7819	+0. 919'
31	12. 6	+ 2. 12	2, 76	1. 0920	1. 1837	8. 7630	0. 918'
	12. 54	- 1. 57	2, 05	1. 1106	1. 1768	8. 7434	0. 91'

☾ Apog. 8^d.

☾ Perig. 24^d.

FEBRUARY 1831.

Days of the Month.	Astronomical Week Days.	At Greenwich Apparent Noon.				At Greenwich Mean Noon.			
		Mean Time.	Hourly Dif- ference.	Double the Sun's daily Var. in Declin.	The Sun's Semidiameter passing the Meridian in Sidereal Time.	Sidereal Time.	Mean Equinoctial Time, adding + 0 ^h 47 1978.	The Sun's Semi-diameter.	
			+ —	+					
		h m s	s	"	m s	h m s	Days.	' "	
1	♂	0. 13. 52, 7	0, 321	2034	1. 8, 26	20. 43. 46, 51	315	16. 15, 31	
2	♂	14. 0, 4	0, 292	2070	8, 15	47. 43, 07	316	15, 15	
3	♂	14. 7, 4	0, 254	2106	8, 04	51. 39, 62	317	14, 99	
4	♀	14. 13, 5	0, 221	2141	7, 92	55. 36, 17	318	14, 83	
5	♂	14. 18, 8	0, 192	2174	7, 80	59. 32, 73	319	14, 66	
6	⊙	0. 14. 23, 4	0, 158	2206	1. 7, 69	21. 3. 29, 28	320	16. 14, 49	
7	♂	14. 27, 2	0, 125	2239	7, 58	7. 25, 84	321	14, 32	
8	♂	14. 30, 2	0, 092	2270	7, 46	11. 22, 39	322	14, 15	
9	♂	14. 32, 4	0, 058	2300	7, 34	15. 18, 95	323	13, 96	
10	♂	14. 33, 8	0, 025	2330	7, 23	19. 15, 50	324	13, 77	
11	♀	14. 34, 4	0, 004	2358	7, 12	23. 12, 06	325	13, 58	
12	♂	14. 34, 3	0, 038	2386	7, 01	27. 8, 61	326	13, 39	
13	⊙	0. 14. 33, 4	0, 071	2413	1. 6, 90	21. 31. 5, 17	327	16. 13, 20	
14	♂	14. 31, 7	0, 100	2438	6, 80	35. 1, 72	328	13, 00	
15	♂	14. 29, 3	0, 129	2463	6, 70	38. 58, 27	329	12, 80	
16	♂	14. 26, 2	0, 163	2488	6, 59	42. 54, 83	330	12, 59	
17	♂	14. 22, 3	0, 192	2511	6, 48	46. 51, 38	331	12, 38	
18	♀	14. 17, 7	0, 225	2534	6, 38	50. 47, 94	332	12, 16	
19	♂	14. 12, 3	0, 250	2555	6, 28	54. 44, 49	333	11, 94	
20	⊙	0. 14. 6, 3	0, 283	2575	1. 6, 18	21. 58. 41, 04	334	16. 11, 72	
21	♂	13. 59, 5	0, 308	2596	6, 09	22. 2. 37, 59	335	11, 50	
22	♂	13. 52, 1	0, 333	2615	6, 00	6. 34, 15	336	11, 27	
23	♂	13. 44, 1	0, 363	2633	5, 90	10. 30, 70	337	11, 04	
24	♂	13. 35, 4	0, 388	2651	5, 81	14. 27, 25	338	10, 81	
25	♀	13. 26, 1	0, 413	2668	5, 73	18. 23, 81	339	10, 58	
26	♂	13. 16, 2	0, 438	2684	5, 65	22. 20, 36	340	10, 34	
27	⊙	0. 13. 5, 7	0, 458	2699	1. 5, 57	22. 26. 16, 91	341	16. 10, 10	
28	♂	12. 54, 7	0, 483	2713	5, 49	30. 13, 46	342	9, 86	
		12. 43, 1		2727	5, 40	34. 10, 02	343	9, 61	

For Mean Time of passage sub. 0^h 18

FEBRUARY 1831.

Days of the Month.	THE MOON'S			At Greenwich Mean Midnight.			
	Right Asc.	Declin.	Semidiameter	Relative to the			
	at	at	passing	Corrections of the Places of the Fixed Stars,			
	the Time	the Time	the	LOGARITHMS			
	of her	of her	Meridian	OF			
	Transit.	Transit.	in Sidereal	A	B	C	D
	h m	° /	m s				
1	12. 54	— 1. 57	1. 2, 05	—1. 1006	+1. 1768	—8. 7434	+0. 917
2	13. 41	5. 55	1, 80	1. 1088	1. 1696	8. 7233	0. 916
3	14. 29	9. 35	2, 02	1. 1168	1. 1622	8. 7024	0. 914
4	15. 17	12. 49	2, 66	1. 1245	1. 1545	8. 6807	0. 913
5	16. 6	15. 29	3, 56	1. 1319	1. 1466	8. 6582	0. 912
6	16. 57	17. 29	1. 4, 61	—1. 1391	+1. 1383	—8. 6348	+0. 911
7	17. 49	18. 42	5, 63	1. 1460	1. 1298	8. 6103	0. 909
8	18. 43	18. 59	6, 45	1. 1526	1. 1210	8. 5847	0. 908
9	19. 38	18. 16	6, 96	1. 1591	1. 1118	8. 5579	0. 907
10	20. 34	16. 30	7, 13	1. 1653	1. 1023	8. 5297	0. 906
11	21. 30	13. 46	7, 01	1. 1712	1. 0926	8. 5000	0. 904
12	6	.....	....	1. 1770	1. 0823	8. 4685	0. 903
13	22. 26	10. 11	1. 6, 77	—1. 1825	+1. 0717	—8. 4351	+0. 902
14	23. 21	5. 57	6, 61	1. 1879	1. 0607	8. 3993	0. 901
15	0. 16	— 1. 20	6, 65	1. 1930	1. 0493	8. 3610	0. 899
16	1. 12	+ 3. 24	7, 02	1. 1979	1. 0375	8. 3195	0. 898
17	2. 8	7. 58	7, 71	1. 2027	1. 0252	8. 2742	0. 897
18	3. 5	12. 3	8, 66	1. 2073	1. 0124	8. 2243	0. 896
19	4. 4	15. 22	9, 62	1. 2116	0. 9991	8. 1685	0. 895
20	5. 4	17. 42	1. 10, 36	—1. 2159	+0. 9852	—8. 1055	+0. 894
21	6. 6	18. 52	10, 60	1. 2199	0. 9708	8. 0330	0. 893
22	7. 7	18. 46	10, 15	1. 2237	0. 9557	7. 9469	0. 892
23	8. 7	17. 28	9, 09	1. 2274	0. 9400	7. 8414	0. 890
24	9. 5	15. 8	7, 61	1. 2309	0. 9235	7. 7033	0. 889
25	10. 0	11. 57	5, 98	1. 2343	0. 9062	7. 5024	0. 888
26	10. 53	8. 11	4, 46	1. 2375	0. 8882	—7. 1239	0. 887
27	11. 44	+ 4. 5	1. 3, 27	—1. 2405	+0. 8691	+6. 6990	+0. 886
28	12. 33	— 0. 7	2, 42	1. 2434	0. 8491	7. 3617	0. 885
	13. 21	4. 12	2, 02	1. 2462	0. 8280	7. 6117	0. 885

☾ Apog. 5^d.

☾ Perig. 18^d.

MARCH 1831.

Days of the Month.	Astronomical Week Days.	At Greenwich Apparent Noon.				At Greenwich Mean Noon.				Days of the Year from Jan. 1.
		Mean Time.	Hourly Difference	Double the Sun's daily Var. in Declin. +	The Sun's Semidiameter passing the Meridian in Sidereal Time.	Sidereal Time.	Mean Equinoctial Time, + 0 ^h , 47 ^m 19 ^s 8 adding + 0 ^h , 22 ^m 17 ^s 14	The Sun's Semidiameter.		
		h m s	s	"	m s	h m s	Days.	' "		
1	♈	0. 12. 43, 1	0, 504	2727	1. 5, 40	22. 34. 10, 02	343	16. 9, 61	59	
2	♈	12. 31, 0	0, 521	2740	5, 33	38. 6, 57	344	9, 36	60	
3	♈	12. 18, 5	0, 542	2753	5, 26	42. 3, 12	345	9, 11	61	
4	♈	12. 5, 5	0, 563	2765	5, 19	45. 59, 67	346	8, 86	62	
5	♈	11. 52, 0	0, 579	2775	5, 13	49. 56, 22	347	8, 61	63	
6	♈	0. 11. 38, 1	0, 592	2785	1. 5, 06	22. 53. 52, 78	348	16. 8, 36	64	
7	♈	11. 23, 9	0, 613	2795	5, 00	57. 49, 33	349	8, 11	65	
8	♈	11. 9, 2	0, 629	2803	4, 94	23. 1. 45, 88	350	7, 85	66	
9	♈	10. 54, 1	0, 642	2810	4, 89	5. 42, 43	351	7, 59	67	
10	♈	10. 38, 7	0, 654	2818	4, 83	9. 38, 98	352	7, 33	68	
11	♈	10. 23, 0	0, 667	2824	4, 78	13. 35, 54	353	7, 06	69	
12	♈	10. 7, 0	0, 679	2829	4, 73	17. 32, 09	354	6, 78	70	
13	♈	0. 9. 50, 7	0, 696	2834	1. 4, 69	23. 21. 28, 64	355	16. 6, 52	71	
14	♈	9. 34, 0	0, 700	2838	4, 65	25. 25, 20	356	6, 26	72	
15	♈	9. 17, 2	0, 717	2841	4, 61	29. 21, 75	357	5, 99	73	
16	♈	9. 0, 0	0, 721	2842	4, 58	33. 18, 30	358	5, 72	74	
17	♈	8. 42, 7	0, 733	2844	4, 55	37. 14, 85	359	5, 45	75	
18	♈	8. 25, 1	0, 742	2845	4, 52	41. 11, 40	360	5, 18	76	
19	♈	8. 7, 3	0, 746	2844	4, 49	45. 7, 96	361	4, 91	77	
20	♈	0. 7. 49, 4	0, 758	2844	1. 4, 47	23. 49. 4, 51	*362	16. 4, 63	78	
21	♈	7. 31, 2	0, 763	2842	4, 45	53. 1, 06	363	4, 35	79	
22	♈	7. 12, 9	0, 767	2839	4, 43	56. 57, 62	364	4, 07	80	
23	♈	6. 54, 5	0, 771	2836	4, 42	0. 0. 54, 17	0	3, 79	81	
24	♈	6. 36, 0	0, 771	2833	4, 41	4. 50, 72	1	3, 51	82	
25	♈	6. 17, 5	0, 779	2829	4, 40	8. 47, 27	2	3, 23	83	
26	♈	5. 58, 8	0, 775	2823	4, 40	12. 43, 82	3	2, 96	84	
27	♈	0. 5. 40, 2	0, 779	2817	1. 4, 40	0. 16. 40, 38	4	16. 2, 69	85	
		5. 21, 5	0, 775	2811	4, 40	20. 36, 93	5	2, 41	86	
		5. 2, 9	0, 775	2805	4, 40	24. 33, 48	6	2, 14	87	
		4. 44, 3	0, 771	2797	4, 41	28. 30, 03	7	1, 86	88	
		4. 25, 8	0, 771	2788	4, 42	32. 26, 58	8	1, 58	89	
		4. 7, 4	0, 767	2779	4, 43	36. 23, 14	9	1, 31	90	

Mean Time of passage subtr. 0^h, 18

* True Equinox, 1830^y. 362^d, 471978 + 0^h, 853476 = 1830^y. 363^d. 325^h 45^m

MARCH 1831.

Days of the Month.	THE MOON'S			At Greenwich Mean Midnight.			
	Right Asc.	Declin.	Semidiameter	Relative to the			
	at the Time of her Transit.	at the Time of her Transit.	passing the Meridian in Sidereal Time.	Corrections of the Places of the Fixed Stars,			
				LOGARITHMS			
				OF			
	A	B	C	D			
	h m	° '	m s				
1	13. 21	— 4. 12	1. 2, 02	—1. 2462	+0. 8280	+7. 6117	+0. 8850
2	14. 9	8. 4	2, 03	1. 2488	0. 8057	7. 7679	0. 8841
3	14. 57	11. 31	2, 43	1. 2512	0. 7821	7. 8814	0. 8832
4	15. 45	14. 27	3, 11	1. 2535	0. 7570	7. 9704	0. 8824
5	16. 35	16. 45	4, 00	1. 2556	0. 7301	8. 0438	0. 8816
6	17. 26	18. 17	1. 4, 94	—1. 2576	+0. 7014	+8. 1059	+0. 8808
7	18. 19	18. 58	5, 81	1. 2595	0. 6706	8. 1599	0. 8800
8	19. 13	18. 43	6, 51	1. 2612	0. 6372	8. 2074	0. 8793
9	20. 8	17. 27	6, 96	1. 2628	0. 6010	8. 2499	0. 8786
10	21. 3	15. 11	7, 16	1. 2642	0. 5613	8. 2887	0. 8779
11	21. 59	11. 58	7, 19	1. 2655	0. 5175	8. 3239	0. 8773
12	22. 56	7. 58	7, 24	1. 2667	0. 4687	8. 3562	0. 8767
13	♌	....	....	—1. 2678	+0. 4135	+8. 3861	+0. 8761
14	23. 52	— 3. 23	1. 7, 41	1. 2686	0. 3502	8. 4141	0. 8756
15	0. 49	+ 1. 30	7, 78	1. 2694	0. 2759	8. 4403	0. 8751
16	1. 46	6. 19	8, 39	1. 2701	0. 1862	8. 4649	0. 8747
17	2. 45	10. 45	9, 21	1. 2706	0. 0729	8. 4881	0. 8743
18	3. 45	14. 27	10, 03	1. 2709	9. 9191	8. 5101	0. 8739
19	4. 46	17. 10	10, 50	1. 2712	9. 6788	8. 5311	0. 8736
20	5. 47	18. 43	1. 10, 68	—1. 2713	+9. 0958	+8. 5512	+0. 8733
21	6. 48	18. 59	10, 16	1. 2713	—9. 3576	8. 5703	0. 8731
22	7. 48	18. 4	9, 09	1. 2711	9. 7634	8. 5886	0. 8728
23	8. 45	16. 3	7, 61	1. 2708	9. 9692	8. 6062	0. 8726
24	9. 41	13. 9	6, 00	1. 2704	0. 1081	8. 6232	0. 8725
25	10. 34	9. 37	4, 51	1. 2699	0. 2131	8. 6395	0. 8724
26	11. 24	5. 42	3, 29	1. 2692	0. 2974	8. 6552	0. 8723
27	12. 14	+ 1. 31	1. 2, 43	—1. 2684	—0. 3678	+8. 6705	+0. 8723
28	13. 2	— 2. 38	1, 96	1. 2675	0. 4282	8. 6854	0. 8723
29	13. 50	6. 38	1, 89	1. 2664	0. 4811	8. 6998	0. 8724
30	14. 38	10. 18	2, 18	1. 2653	0. 5281	8. 7139	0. 8724
31	15. 26	13. 28	2, 76	1. 2639	0. 5704	8. 7275	0. 8725
	16. 15	16. 3	3, 53	1. 2625	0. 6088	8. 7409	0. 8725

☉ Apog. 5^d.

☿ Perig. 18^d.

APRIL 1831.

Days of the Month.	Astronomical Week Days.	At Greenwich Apparent Noon.				At Greenwich Mean Noon.			
		Mean Time.	Hourly Dif- ference —	Double the Sun's daily Var. in Declin. +	The Sun's Semidiameter passing the Meridian in Sidereal Time.	Sidereal Time.	Mean Equinoctial Time, adding + 0 ^h . 229714.	The Sun's Semi- diameter.	
		h m s	s	"	m s	h m s	Days.	' "	
1	☿	0. 4. 7, 4		2779	1. 4, 43	0. 36. 23, 14	9	16.	1, 31
2	♈	3. 49, 0	0, 767	2769	4, 45	40. 19, 69	10		1, 03
			0, 758						
3	☾	0. 3. 30, 8		2759	1. 4, 47	0. 44. 16, 24	11	16.	0, 75
4	♉	3. 12, 8	0, 750	2749	4. 49	48. 12, 80	12		0, 47
5	♊	2. 54, 9	0, 746	2737	4. 51	52. 9, 35	13		0, 19
6	♋	2. 37, 2	0, 738	2724	4. 54	56. 5, 90	14	15.	59, 92
7	♌	2. 19, 8	0, 725	2711	4. 57	1. 0. 2, 46	15		59, 64
8	♍	2. 2, 6	0, 717	2698	4. 61	3. 59, 01	16		59, 37
9	♎	1. 45, 7	0, 704	2683	4. 65	7. 55, 56	17		59, 10
			0, 696						
10	♏	0. 1. 29, 0		2668	1. 4, 68	1. 11. 52, 11	18	15.	58, 83
11	♐	1. 12, 5	0, 688	2653	4, 72	15. 48, 66	19		58, 56
12	♑	0. 56, 3	0, 675	2635	4, 76	19. 45, 22	20		58, 29
13	♒	0. 40, 5	0, 658	2618	4, 81	23. 41, 77	21		58, 02
14	♓	0. 24, 9	0, 650	2600	4, 85	27. 38, 32	22		57, 75
15	♈	0. 9, 7	0, 633	2581	4, 90	31. 34, 88	23		57, 48
16	♉	23* 59. 54, 8	0, 621	2562	4, 95	35. 31, 43	24		57, 22
			0, 604						
17	☾	23* 59. 40, 3		2541	1. 5, 01	1. 39. 27, 98	25	15.	56, 95
18	♊	59. 26, 1	0, 592	2520	5, 07	43. 24, 53	26		56, 69
19	♋	59. 12, 2	0, 579	2499	5, 13	47. 21, 09	27		56, 43
20	♌	58. 58, 8	0, 558	2477	5, 19	51. 17, 64	28		56, 17
21	♍	58. 45, 7	0, 546	2454	5, 25	55. 14, 19	29		55, 91
22	♎	58. 33, 1	0, 525	2430	5, 32	59. 10, 75	30		55, 65
23	♏	58. 20, 9	0, 508	2406	5, 38	2. 3. 7, 30	31		55, 40
			0, 492						
24	☾	23* 58. 9, 1		2382	1. 5, 45	2. 7. 3, 86	32	15.	55, 15
25	♉	57. 57, 8	0, 471	2356	5, 52	11. 0, 41	33		54, 90
26	♊	57. 46, 9	0, 454	2330	5, 59	14. 56, 96	34		54, 65
27	♋	57. 36, 6	0, 429	2304	5, 66	18. 53, 52	35		54, 41
28	♌	57. 26, 7	0, 413	2277	5, 73	22. 50, 07	36		54, 17
29	♍	57. 17, 4	0, 388	2249	5, 80	26. 46, 62	37		53, 92
30	♎	57. 8, 5	0, 371	2220	5, 88	30. 43, 18	38		53, 68
			0, 342						
		23* 57. 0, 3		2191	1. 5, 96	2. 34. 39, 73	39	15.	53, 45

For Mean Time of passage subtr. 0^h. 18

* Subtracting 24^h. or 1 day

APRIL 1831.

THE MOON'S			At Greenwich Mean Midnight.			
Right Asc. at the Time of her Transit.	Declin. at the Time of her Transit.	Semidiameter passing the Meridian in Sidereal Time.	Relative to the Corrections of the Places of the Fixed Stars,			
			LOGARITHMS			
			OF			
			A	B	C	D
h m	o /	m s				
16. 15	-16. 3	1. 3, 53	-1. 2625	-0. 6088	+8. 7409	+0. 8727
17. 6	17. 54	4, 33	1. 2609	0. 6439	8. 7540	0. 8729
17. 57	18. 56	5, 10	1. 2592	0. 6763	8. 7667	0. 8731
18. 50	19. 5	5, 74	1. 2573	0. 7063	8. 7792	0. 8733
19. 44	18. 15	1. 6, 21	-1. 2553	-0. 7342	+8. 7915	+0. 8736
20. 38	16. 28	6, 56	1. 2532	0. 7603	8. 8035	0. 8739
21. 33	13. 44	6, 76	1. 2509	0. 7848	8. 8153	0. 8742
22. 28	10. 7	6, 97	1. 2485	0. 8078	8. 8269	0. 8746
23. 23	5. 48	7, 33	1. 2460	0. 8296	8. 8383	0. 8750
0. 20	- 0. 59	7, 95	1. 2433	0. 8502	8. 8495	0. 8754
1. 18	+ 4. 0	8, 80	1. 2405	0. 8697	8. 8606	0. 8759
δ	.....	.....	-1. 2375	-0. 8882	+8. 8716	+0. 8764
2. 17	8. 50	1. 9, 86	1. 2344	0. 9059	8. 8824	0. 8769
3. 19	13. 4	10, 01	1. 2311	0. 9227	8. 8930	0. 8774
4. 21	16. 22	11, 65	1. 2277	0. 9388	8. 9035	0. 8779
5. 25	18. 28	11, 88	1. 2241	0. 9542	8. 9139	0. 8785
6. 28	19. 13	11, 30	1. 2204	0. 9689	8. 9241	0. 8791
7. 30	18. 40	10, 05	1. 2165	0. 9830	8. 9343	0. 8797
8. 29	16. 55	1. 8, 36	-1. 2125	-0. 9965	+8. 9443	+0. 8803
9. 25	14. 16	6, 53	1. 2083	1. 0095	8. 9542	0. 8810
10. 18	10. 54	4, 81	1. 2039	1. 0220	8. 9640	0. 8816
11. 9	7. 3	3, 39	1. 1993	1. 0340	8. 9737	0. 8823
12. 58	+ 2. 57	2, 36	1. 1946	1. 0455	8. 9833	0. 8830
12. 46	- 1. 13	1, 79	1. 1897	1. 0566	8. 9929	0. 8837
13. 33	5. 18	1, 65	1. 1847	1. 0674	9. 0023	0. 8844
14. 20	9. 6	1. 1, 89	-1. 1794	-1. 0777	+9. 0117	+0. 8851
15. 9	12. 30	2, 42	1. 1740	1. 0877	9. 0210	0. 8858
15. 58	15. 21	3, 14	1. 1684	1. 0973	9. 0302	0. 8866
16. 48	17. 30	3, 93	1. 1625	1. 1065	9. 0393	0. 8873
17. 39	18. 52	4, 64	1. 1565	1. 1155	9. 0483	0. 8881
18. 31	19. 21	5, 22	1. 1503	1. 1242	9. 0573	0. 8888

▷ Apog. 1^d.

▷ Perig. 13^d.

▷ Apog. 23^d.

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Days of the Month.		Astronomical Week Days.		At Greenwich Apparent Noon.				At Greenwich Mean Noon.			
		Mean Time.		Hourly Dif- ference — +	Double the Sun's daily Var. in Declin. +	The Sun's Semidiameter passing the Meridian in Sidereal Time.	Sidereal Time.		Mean Equinoctial Time, adding + 0 ^s .229714.	The Sun's Semi- diameter	
		h	m s	s	"	m s	h	m s	Days.	'	"
1	☉	23° 57.	0, 3	0, 321	2191	1. 5, 96	2. 34.	39, 73	39	15. 53,	45
2	☽	56. 52.	6, 0	0, 300	2161	6, 04	38. 36.	29, 40	40	53, 21	
3	♂	56. 45.	4, 0	0, 275	2132	6, 11	42. 32.	84, 41	41	52, 98	
4	♀	56. 38.	8, 0	0, 254	2101	6, 10	46. 29.	40, 42	42	52, 76	
5	♂	56. 32.	7, 0	0, 225	2060	6, 27	50. 25.	95, 43	43	52, 53	
6	♀	56. 27.	3, 0	0, 200	2037	6, 36	54. 22.	51, 44	44	52, 30	
7	♂	56. 22.	5, 0	0, 179	2004	6, 44	58. 19.	06, 45	45	52, 08	
8	☉	23° 56.	18, 2	0, 154	1972	1. 6, 52	3. 2. 15.	62, 46	46	15. 51,	87
9	☽	56. 14.	5, 0	0, 129	1938	6, 60	6. 12.	17, 47	47	51, 66	
10	♂	56. 11.	4, 0	0, 104	1902	6, 69	10. 8.	73, 48	48	51, 45	
11	♀	56. 8.	9, 0	0, 079	1867	6, 77	14. 5.	28, 49	49	51, 24	
12	♂	56. 7.	0, 0	0, 054	1832	6, 85	18. 1.	83, 50	50	51, 03	
13	♀	56. 5.	7, 0	0, 033	1795	6, 93	21. 58.	39, 51	51	50, 83	
14	♂	56. 4.	9, 0	0, 008	1757	7, 01	25. 54.	94, 52	52	50, 63	
15	☉	23° 56.	4, 7	0, 013	1720	1. 7, 09	3. 29. 51.	50, 53	53	15. 50,	43
16	☽	56. 5.	0, 0	0, 038	1682	7, 18	33. 48.	05, 54	54	50, 23	
17	♂	56. 5.	9, 0	0, 058	1643	7, 26	37. 44.	61, 55	55	50, 04	
18	♀	56. 7.	3, 0	0, 083	1604	7, 34	41. 41.	16, 56	56	49, 86	
19	♂	56. 9.	3, 0	0, 100	1564	7, 42	45. 37.	72, 57	57	49, 67	
20	♀	56. 11.	7, 0	0, 129	1523	7, 50	49. 34.	27, 58	58	49, 49	
21	♂	56. 14.	8, 0	0, 146	1482	7, 58	53. 30.	83, 59	59	49, 31	
22	☉	23° 56.	18, 3	0, 171	1441	1. 7, 65	3. 57. 27.	39, 60	60	15. 49,	13
23	☽	56. 22.	4, 0	0, 188	1399	7, 73	4. 1. 23.	94, 61	61	48, 96	
24	♂	56. 26.	9, 0	0, 213	1357	7, 80	5. 20.	50, 62	62	48, 80	
25	♀	56. 32.	0, 0	0, 238	1314	7, 87	9. 17.	05, 63	63	48, 64	
26	♂	56. 37.	7, 0	0, 250	1271	7, 94	13. 13.	61, 64	64	48, 48	
27	♀	56. 43.	7, 0	0, 271	1227	8, 01	17. 10.	17, 65	65	48, 33	
28	♂	56. 50.	2, 0	0, 296	1183	8, 08	21. 6.	72, 66	66	48, 18	
29	☉	23° 56.	57, 3	0, 313	1139	1. 8, 15	4. 25. 3.	28, 67	67	15. 48,	03
30	☽	57. 4.	8, 0	0, 329	1094	8, 21	28. 59.	83, 68	68	47, 89	
31	♂	57. 12.	7, 0	0, 350	1049	8, 27	32. 56.	39, 69	69	47, 76	
		57. 21.	1, 0		1003	8, 32	36. 52.	94, 70	70	47. 63	

For Mean Time of passage sub. 0^s,18

MAY 1831.

THE MOON'S			At Greenwich Mean Midnight.			
Right Asc. at the Time of her Transit.	Declin. at the Time of her Transit.	Semidiameter passing the Meridian in Sidereal Time.	Relative to the Corrections of the Places of the Fixed Stars,			
			LOGARITHMS			
			OF			
			A	B	C	D
h m	° ' "	m s				
18. 31	-19. 21	1. 5, 22	-1. 1503	-1. 1242	+9. 0573	+0. 8888
19. 24	18. 55	5, 59	1. 1438	1. 1325	9. 0662	0. 8896
20. 17	17. 31	5, 78	1. 1371	1. 1406	9. 0750	0. 8903
21. 10	15. 12	5, 90	1. 1302	1. 1484	9. 0838	0. 8911
22. 3	12. 1	6, 06	1. 1231	1. 1559	9. 0925	0. 8918
22. 57	8. 5	6, 36	1. 1157	1. 1632	9. 1011	0. 8926
23. 52	- 3. 33	6, 99	1. 1081	1. 1703	9. 1096	0. 8933
0. 48	+ 1. 20	1. 7, 98	-1. 1002	-1. 1771	+9. 1181	+0. 8941
1. 46	6. 19	9, 31	1. 0921	1. 1836	9. 1265	0. 8948
2. 47	11. 0	10, 83	1. 0836	1. 1900	9. 1348	0. 8956
6	.....	.....	1. 0749	1. 1961	9. 1430	0. 8963
3. 50	14. 57	12, 25	1. 0659	1. 2021	9. 1512	0. 8970
4. 55	17. 47	13, 07	1. 0566	1. 2078	9. 1593	0. 8977
6. 0	19. 14	13, 02	1. 0469	1. 2133	9. 1673	0. 8984
7. 5	19. 15	1. 12, 01	-1. 0369	-1. 2187	+9. 1753	+0. 8991
8. 7	17. 56	10, 24	1. 0265	1. 2238	9. 1832	0. 8998
9. 6	15. 30	8, 09	1. 0158	1. 2288	9. 1910	0. 9005
10. 1	12. 16	5, 96	1. 0047	1. 2335	9. 1988	0. 9011
10. 53	8. 30	4, 15	0. 9931	1. 2381	9. 2065	0. 9018
11. 43	4. 24	2, 79	0. 9811	1. 2426	9. 2141	0. 9024
12. 31	+ 0. 14	1, 92	0. 9687	1. 2468	9. 2217	0. 9030
13. 18	- 3. 55	1. 1, 58	-0. 9558	-1. 2510	+9. 2292	+0. 9036
14. 5	7. 52	1, 68	0. 9424	1. 2549	9. 2367	0. 9041
14. 53	11. 25	2, 13	0. 9284	1. 2587	9. 2441	0. 9047
15. 41	14. 31	2, 82	0. 9138	1. 2623	9. 2514	0. 9052
16. 31	16. 58	3, 61	0. 8986	1. 2658	9. 2586	0. 9057
17. 22	18. 39	4, 40	0. 8827	1. 2691	9. 2657	0. 9062
18. 14	19. 28	5, 00	0. 8661	1. 2723	9. 2728	0. 9066
19. 7	19. 21	1. 5, 31	-0. 8488	-1. 2753	+9. 2798	+0. 9070
19. 59	18. 18	5, 39	0. 8305	1. 2782	9. 2867	0. 9074
20. 52	16. 20	5, 33	0. 8113	1. 2810	9. 2936	0. 9078
21. 45	13. 30	5, 25	0. 7912	1. 2836	9. 3005	0. 9082

Perig. 12^d.Apog. 26^d.

JUNE 1831.

Days of the Month.	Astronomical Week Days.	At Greenwich Apparent Noon.					At Greenwich Mean Noon.			
		Mean Time.	Hourly Dif- ference +	Double the Sun's daily Var. in Decl. + -	The Sun's Semidiameter passing the Meridian in Sidereal Time.		Sidereal Time.	Mean Equinoctial Time, adding + 0 ^s . 229714.	The Sun's Semi- diameter.	
		h m s s		"	m s		h m s	Days.		
1	♂	23 ^s 57. 21, 1	0, 371	1003	1. 8, 32		4. 36. 52, 94	70	15. 47, 63	
2	♂	57. 30, 0	0, 383	958	8, 38		40. 49, 50	71	47, 50	
3	♀	57. 39, 2	0, 404	911	8, 43		44. 46, 06	72	47, 37	
4	♂	57. 48, 9	0, 421	864	8, 49		48. 42, 61	73	47, 24	
5	☉	23 ^s 57. 59, 0	0, 433	818	1. 8, 54		4. 52. 39, 17	74	15. 47, 11	
6	♂	58. 9, 4	0, 446	770	8, 59		56. 35, 72	75	47, 00	
7	♂	58. 20, 1	0, 463	723	8, 63		5. 0. 32, 28	76	46, 89	
8	♂	58. 31, 2	0, 475	675	8, 67		4. 28, 84	77	46, 78	
9	♂	58. 42, 6	0, 488	627	8, 71		8. 25, 39	78	46, 67	
10	♀	58. 54, 3	0, 496	579	8, 74		12. 21, 95	79	46, 57	
11	♂	59. 6, 2	0, 504	529	8, 77		16. 18, 51	80	46, 48	
12	☉	23 ^s 59. 18, 3	0, 513	481	1. 8, 80		5. 20. 15, 06	81	15. 46, 39	
13	♂	59. 30, 6	0, 521	432	8, 83		24. 11, 62	82	46, 31	
14	♂	59. 43, 1	0, 525	382	8, 86		28. 8, 17	83	46, 23	
15	♂	23 ^s 59. 55, 7	0, 529	334	8, 88		32. 4, 73	84	46, 16	
16	♂	0. 0. 8, 4	0, 533	285	8, 90		36. 1, 29	85	46, 09	
17	♀	0. 21, 2	0, 533	235	8, 91		39. 57, 84	86	46, 02	
18	♂	0. 34, 0	0, 538	185	8, 92		43. 54, 40	87	45, 95	
19	☉	0. 0. 46, 9	0, 538	135	1. 8, 92		5. 47. 50, 96	88	15. 45, 89	
20	♂	0. 59, 8	0, 542	86	8, 93		51. 47, 52	89	45, 83	
21	♂	1. 12, 8	0, 538	37	8, 93		55. 44, 07	90	45, 77	
22	♂	1. 25, 7	0, 533	13	8, 93		59. 40, 63	91	45, 72	
23	♂	1. 38, 5	0, 533	63	8, 92		6. 3. 37, 19	92	45, 67	
24	♀	1. 51, 3	0, 529	112	8, 91		7. 33, 74	93	45, 63	
25	♂	2. 4, 0	0, 525	162	8, 90		11. 30, 30	94	45, 60	
26	☉	0. 2. 16, 6	0, 521	212	1. 8, 89		6. 15. 26, 86	95	15. 45, 57	
27	♂	2. 29, 1	0, 513	260	8, 87		19. 23, 41	96	45, 55	
28	♂	2. 41, 4	0, 508	309	8, 84		23. 19, 97	97	45, 54	
29	♂	2. 53, 6	0, 504	359	8, 82		27. 16, 53	98	45, 53	
30	♂	3. 5, 7	0, 492	407	8, 79		31. 13, 08	99	45, 52	
		3. 17, 5		456	8, 76		35. 9, 64	100	45, 51	

For Mean Time of passage subtr. 0^s. 19

JUNE 1831.

Days of the Month.	THE MOON'S			At Greenwich Mean Midnight.			
	Right Asc.	Declin.	Semidiameter	Relative to the			
	at the Time of her Transit.	at the Time of her Transit.	passing the Meridian in Sidereal Time.	Corrections of the Places of the Fixed Stars,			
				LOGARITHMS			
				OF			
				A	B	C	D
	h m	° /	m s				
1	21. 45	-13. 30	1. 5, 25	-0. 7912	-1. 2836	+9. 3005	+0. 9082
2	22. 37	9. 54	5, 30	0. 7700	1. 2861	9. 3073	0. 9085
3	23. 30	5. 43	5, 66	0. 7475	1. 2884	9. 3140	0. 9088
4	0. 23	- 1. 3	6, 44	0. 7237	1. 2906	9. 3206	0. 9091
5	1. 18	+ 3. 48	1. 7, 67	-0. 6984	-1. 2927	+9. 3272	+0. 9093
6	2. 16	8. 36	9, 34	0. 6714	1. 2946	9. 3337	0. 9095
7	3. 17	12. 58	11, 17	0. 6425	1. 2965	9. 3401	0. 9097
8	4. 20	16. 28	12, 80	0. 6113	1. 2981	9. 3464	0. 9099
9	5. 26	18. 46	13, 71	0. 5777	1. 2997	9. 3527	0. 9100
10	6. 33	19. 35	13, 55	0. 5410	1. 3011	9. 3589	0. 9101
11	7. 38	18. 53	1. 12, 35	-0. 4566	-1. 3036	+9. 3711	+0. 9102
12	8. 41	16. 54	10, 28	0. 4072	1. 3047	9. 3771	0. 9102
13	9. 39	13. 54	7, 94	0. 3512	1. 3056	9. 3830	0. 9102
14	10. 34	10. 12	5, 72	0. 2869	1. 3065	9. 3889	0. 9102
15	11. 26	6. 7	3, 93	0. 2111	1. 3071	9. 3947	0. 9101
16	12. 15	+ 1. 52	2, 65	0. 1192	1. 3077	9. 4004	0. 9100
17	13. 3	- 2. 23	1, 95	0. 0024	1. 3082	9. 4061	0. 9098
18	13. 50	6. 26	1. 1, 75	-9. 8419	-1. 3085	+9. 4117	+0. 9096
19	14. 38	10. 10	2, 02	9. 5844	1. 3087	9. 4172	0. 9094
20	15. 25	13. 28	2, 62	8. 8648	1. 3088	9. 4227	0. 9091
21	16. 15	16. 10	3, 40	+9. 3757	1. 3088	9. 4281	0. 9089
22	17. 5	18. 11	4, 21	9. 7390	1. 3086	9. 4334	0. 9085
23	17. 57	19. 20	4, 92	9. 9339	1. 3083	9. 4386	0. 9082
24	18. 50	19. 35	5, 39	0. 0678	1. 3079	9. 4438	0. 9078
25	19. 43	18. 52	1. 5, 53	+0. 1699	-1. 3074	+9. 4489	+0. 9074
26	20. 36	17. 12	5, 39	0. 2524	1. 3068	9. 4540	0. 9070
27	21. 29	14. 38	5, 10	0. 3216	1. 3060	9. 4590	0. 9065
28	22. 21	11. 18	4, 88	0. 3812	1. 3052	9. 4639	0. 9060
29	23. 13	7. 20	4, 87	0. 4335	1. 3042	9. 4687	0. 9055
30	0. 5	- 2. 54	5, 25	0. 4800	1. 3030	9. 4735	0. 9049

☾ Perig. 9^d.

☾ Apog. 22^d.

JULY 1831.

Days of the Month.	Astronomical Week Days.	At Greenwich Apparent Noon.					At Greenwich Mean Noon.						
		Mean Time.	Hourly Difference + —	Double the Sun's daily Var. in Declin. —	The Sun's Semidiameter passing the Meridian in Sidereal Time.	Sidereal Time.	Mean Equinoctial Time, adding + 0 ^d . 229714.	The Sun's Semi-diameter.					
h	m	s	s	"	m	s	h	m	s	Days.	"		
1	☉	0.	3.	17, 5	0, 483	456	1.	8,	76	6. 35.	9, 64	100	15. 45, 51
2	☿		3.	29, 1	0, 475	505		8,	73	39.	6, 19	101	45, 50
3	☊	0.	3.	40, 5	0, 463	553	1.	8,	69	6. 43.	2, 75	102	15. 45, 50
4	♈		3.	51, 6	0, 450	602		8,	65	46. 59,	31	103	45, 50
5	☌		4.	2, 4	0, 442	649		8,	60	50. 55,	86	104	45, 51
6	☍		4.	13, 0	0, 425	697		8,	56	54. 52,	42	105	45, 52
7	♊		4.	23, 2	0, 413	745		8,	51	58. 48,	97	106	45, 54
8	☉		4.	33, 1	0, 396	791		8,	46	7. 2. 45,	53	107	45, 57
9	☿		4.	42, 6	0, 379	838		8,	40	6. 42,	09	108	45, 61
10	☊	0.	4.	51, 7	0, 358	885	1.	8,	34	7. 10. 38,	64	109	15. 45, 65
11	♈		5.	0, 3	0, 346	931		8,	28	14. 35,	20	110	45, 69
12	☌		5.	8, 6	0, 325	977		8,	22	18. 31,	76	111	45, 73
13	☍		5.	16, 4	0, 300	1022		8,	16	22. 28,	31	112	45, 77
14	♊		5.	23, 6	0, 283	1066		8,	10	26. 24,	87	113	45, 82
15	☉		5.	30, 4	0, 263	1111		8,	03	30. 21,	42	114	45, 87
16	☿		5.	36, 7	0, 242	1155		7,	96	34. 17,	98	115	45, 93
17	☊	0.	5.	42, 5	0, 217	1198	1.	7,	89	7. 38. 14,	54	116	15. 46, 00
18	♈		5.	47, 7	0, 196	1242		7,	81	42. 11,	09	117	46, 07
19	☌		5.	52, 4	0, 171	1285		7,	74	46. 7,	65	118	46, 14
20	☍		5.	56, 5	0, 150	1326		7,	66	50. 4,	21	119	46, 22
21	♊		6.	0, 1	0, 125	1368		7,	58	54. 0,	76	120	46, 30
22	☉		6.	3, 1	0, 100	1410		7,	50	57. 57,	32	121	46, 38
23	☿		6.	5, 5	0, 075	1450		7,	42	8. 1. 53,	87	122	46, 47
24	☊	0.	6.	7, 3	0, 054	1490	1.	7,	34	8. 5. 50,	43	123	15. 46, 56
25	♈		6.	8, 6	0, 025	1530		7,	26	9. 46,	98	124	46, 66
26	☌		6.	9, 2	0, 004	1570		7,	18	13. 43,	54	125	46, 76
27	☍		6.	9, 3	0, 021	1609		7,	09	17. 40,	10	126	46, 86
28	♊		6.	8, 8	0, 046	1646		7,	00	21. 36,	65	127	46, 97
29	☉		6.	7, 7	0, 067	1684		6,	92	25. 33,	21	128	47, 09
30	☿		6.	6, 1	0, 092	1722		6,	83	29. 29,	76	129	47, 21
31	☊	0.	6.	3, 9	0, 117	1758	1.	6,	74	8. 33. 26,	32	130	15. 47, 33
			6.	1, 1		1794		6,	66	37. 22,	87	131	47, 46

For Mean Time of passage subt. 0^s. 19

JULY 1831.

THE MOON'S				At Greenwich Mean Midnight.			
Days of July	Right Asc. at the Time of her Transit.	Declin. at the Time of her Transit.	Semidiameter passing the Meridian in Sidereal Time.	Relative to the Corrections of the Places of the Fixed Stars,			
	h m	° '	m s	LOGARITHMS			
				A	B	C	D
1	0. 5	- 2. 54	1. 5, 25	+0. 4800	-1. 3030	+9. 4735	+0. 9049
2	0. 58	+ 1. 47	6, 08	0. 5220	1. 3018	9. 4783	0. 9043
3	1. 53	6. 30	1. 7, 42	+0. 5602	-1. 3004	+9. 4830	+0. 9037
4	2. 50	10. 58	9, 15	0. 5951	1. 2989	9. 4876	0. 9030
5	3. 50	14. 49	11, 01	0. 6273	1. 2973	9. 4921	0. 9023
6	4. 54	17. 43	12, 58	0. 6572	1. 2956	9. 4966	0. 9016
7	5. 59	19. 20	13, 40	0. 6851	1. 2937	9. 5010	0. 9008
8	7. 5	19. 29	13, 15	0. 7112	1. 2917	9. 5053	0. 9000
9	6	.....	.....	0. 7356	1. 2895	9. 5096	0. 8992
10	8. 10	18. 9	1. 11, 85	+0. 7587	-1. 2873	+9. 5138	+0. 8983
11	9. 12	15. 36	9, 83	0. 7805	1. 2849	9. 5180	0. 8974
12	10. 10	12. 7	7, 58	0. 8011	1. 2823	9. 5221	0. 8965
13	11. 4	8. 5	5, 52	0. 8207	1. 2797	9. 5261	0. 8956
14	11. 56	+ 3. 47	3, 89	0. 8393	1. 2769	9. 5301	0. 8946
15	12. 45	- 0. 35	2, 78	0. 8571	1. 2739	9. 5340	0. 8936
16	13. 33	4. 47	2, 22	0. 8740	1. 2708	9. 5379	0. 8926
17	14. 21	8. 43	1. 2, 19	+0. 8902	-1. 2676	+9. 5417	+0. 8915
18	15. 8	12. 13	2, 56	0. 9056	1. 2642	9. 5455	0. 8904
19	15. 57	15. 10	3, 23	0. 9205	1. 2607	9. 5492	0. 8893
20	16. 47	17. 28	4, 05	0. 9347	1. 2570	9. 5528	0. 8882
21	17. 39	18. 58	4, 85	0. 9484	1. 2532	9. 5564	0. 8871
22	18. 31	19. 35	5, 45	0. 9615	1. 2492	9. 5599	0. 8859
23	19. 24	19. 14	5, 74	0. 9741	1. 2450	9. 5633	0. 8847
24	20. 18	17. 53	1. 5, 74	+0. 9863	-1. 2407	+9. 5667	+0. 8835
25	21. 12	15. 38	5, 50	0. 9980	1. 2362	9. 5700	0. 8823
26	22. 5	12. 30	5, 16	1. 0093	1. 2216	9. 5733	0. 8811
27	22. 57	8. 42	4, 94	1. 0202	1. 2268	9. 5766	0. 8798
28	23. 49	- 4. 23	4, 98	1. 0307	1. 2218	9. 5798	0. 8785
29	0. 42	+ 0. 14	5, 42	1. 0408	1. 2166	9. 5829	0. 8772
30	1. 35	4. 54	6, 32	1. 0506	1. 2112	9. 5860	0. 8759
1	2. 30	9. 24	1. 7, 61	+1. 0601	-1. 2057	+9. 5890	+0. 8747
	3. 28	13. 24	9, 20	1. 0692	1. 1999	9. 5920	

D Perig. 8^d.D Apog. 20^d.

AUGUST 1831.

Days of the Month.	Astronomical Week Days.	At Greenwich Apparent Noon.					At Greenwich Mean Noon.					Days of the Year from Jan. 1.
		Mean Time.	Hourly Difference —	Double the Sun's daily Var. in Declin. —	The Sun's Semidiameter passing the Meridian in Sidereal Time.	Sidereal Time.	Mean Equinoctial Time, adding + 0', 229714.	The Sun's Semi-diameter.				
h	m	s	s	"	m	s	h	m	s	Days.	'	"
1	D	0. 6. 1, 1	0, 146	1794	1. 6, 66	8. 37. 22, 87	131	15. 47, 46	218			
2	Q	5. 57, 6	0, 163	1830	6, 58	41. 19, 42	132	47, 60	219			
3	X	5. 53, 7	0, 192	1865	6, 49	45. 15, 98	133	47, 74	220			
4	Z	5. 49, 1	0, 213	1900	6, 40	49. 12, 54	134	47, 88	221			
5	+	5. 44, 0	0, 238	1934	6, 31	53. 9, 09	135	48, 02	222			
6	h	5. 38, 3	0, 263	1966	6, 23	57. 5, 65	136	48, 16	223			
7	o	0. 5. 32, 0	0, 288	1999	1. 6, 14	9. 1. 2, 20	137	15. 48, 31	224			
8	D	5. 25, 1	0, 313	2031	6, 06	4. 58, 76	138	48, 46	225			
9	Q	5. 17, 6	0, 338	2062	5, 97	8. 55, 31	139	48, 61	226			
10	X	5. 9, 5	0, 358	2093	5, 89	12. 51, 87	140	48, 78	227			
11	Z	5. 0, 9	0, 388	2123	5, 80	16. 48, 42	141	48, 95	228			
12	+	4. 51, 6	0, 408	2152	5, 72	20. 44, 97	142	49, 12	229			
13	h	4. 41, 8	0, 433	2180	5, 64	24. 41, 52	143	49, 30	230			
14	o	0. 4. 31, 4	0, 454	2209	1. 5, 56	9. 28. 38, 08	144	15. 49, 48	231			
15	D	4. 20, 5	0, 479	2236	5, 49	32. 34, 63	145	49, 66	232			
16	Q	4. 9, 0	0, 504	2262	5, 41	36. 31, 19	146	49, 84	233			
17	X	3. 56, 9	0, 525	2289	5, 33	40. 27, 74	147	50, 02	234			
18	Z	3. 44, 3	0, 546	2314	5, 26	44. 24, 29	148	50, 21	235			
19	+	3. 31, 2	0, 567	2339	5, 18	48. 20, 85	149	50, 40	236			
20	h	3. 17, 6	0, 588	2364	5, 11	52. 17, 40	150	50, 59	237			
21	o	0. 3. 3, 5	0, 604	2387	1. 5, 04	9. 56. 13, 96	151	15. 50, 79	238			
22	D	2. 49, 0	0, 629	2409	4, 97	10. 0. 10, 51	152	51, 00	239			
23	Q	2. 33, 9	0, 646	2432	4, 91	4. 7, 06	153	51, 21	240			
24	X	2. 18, 4	0, 663	2454	4, 85	8. 3, 61	154	51, 42	241			
25	Z	2. 2, 5	0, 675	2476	4, 79	12. 0, 17	155	51, 63	242			
26	+	1. 46, 3	0, 696	2497	4, 72	15. 56, 72	156	51, 84	243			
27	h	1. 29, 6	0, 713	2516	4, 66	19. 53, 27	157	52, 05	244			
28	o	0. 1. 12, 5	0, 725	2535	1. 4, 61	10. 23. 49, 83	158	15. 52, 27	245			
29	D	0. 55, 1	0, 742	2554	4, 56	27. 46, 38	159	52, 49	246			
30	Q	0. 37, 3	0, 750	2573	4, 51	31. 42, 94	160	52, 71	247			
31	X	0. 19, 3	0, 767	2590	4, 46	35. 39, 49	161	52, 94	248			
		0. 0, 9		2607	4, 41	39. 36, 04	162	53, 18	249			

Mean Time of passage subtr. 0, 18

AUGUST 1831.

THE MOON'S				At Greenwich Mean Midnight.			
LUNAR DATE	Right Asc. at the Time of her Transit.	Declin. at the Time of her Transit.	Semidiameter passing the Meridian in Sidereal Time.	Relative to the Corrections of the Places of the Fixed Stars,			
				LOGARITHMS			
				OF			
	A	B	C	D			
	h m	° '	m s				
1	3. 28	+13. 24	1. 9, 20	+1. 0692	-1. 1999	+9. 5920	+0. 8732
2	4. 28	16. 37	10, 81	1. 0781	1. 1940	9. 5949	0. 8719
3	5. 31	18. 45	12, 02	1. 0866	1. 1878	9. 5978	0. 8705
4	6. 35	19. 33	12, 45	1. 0949	1. 1814	9. 6006	0. 8691
5	7. 39	18. 57	11, 95	1. 1029	1. 1748	9. 6034	0. 8677
6	8. 42	17. 0	10, 59	1. 1106	1. 1680	9. 6061	0. 8663
7	9. 42	13. 57	1. 8, 72	+1. 1181	-1. 1609	+9. 6088	+0. 8649
8	10. 38	10. 8	6, 76	1. 1254	1. 1536	9. 6115	0. 8635
9	11. 32	5. 51	5, 04	1. 1324	1. 1461	9. 6141	0. 8621
10	12. 23	+ 1. 25	3, 71	1. 1391	1. 1383	9. 6167	0. 8607
11	13. 13	- 2. 58	2, 89	1. 1457	1. 1302	9. 6192	0. 8593
12	14. 1	7. 5	2, 58	1. 1520	1. 1218	9. 6217	0. 8579
13	14. 49	10. 49	1. 2, 70	1. 1582	1. 1131	9. 6241	0. 8565
14	15. 38	14. 2	3, 14	+1. 1641	-1. 1042	+9. 6265	+0. 8551
15	16. 28	16. 36	3, 83	1. 1698	1. 0949	9. 6288	0. 8537
16	17. 19	18. 26	4, 61	1. 1753	1. 0853	9. 6311	0. 8523
17	18. 10	19. 25	5, 30	1. 1806	1. 0753	9. 6334	0. 8509
18	19. 3	19. 27	5, 78	1. 1858	1. 0650	9. 6356	0. 8495
19	19. 57	18. 30	5, 98	1. 1908	1. 0543	9. 6378	0. 8481
20	20. 51	16. 35	1. 5, 95	1. 1956	1. 0432	9. 6400	0. 8467
21	21. 45	13. 45	5, 74	+1. 2002	-1. 0317	+9. 6421	+0. 8453
22	22. 38	10. 8	5, 56	1. 2047	1. 0197	9. 6442	0. 8440
23	23. 32	5. 54	5, 47	1. 2090	1. 0073	9. 6462	0. 8426
24	0. 25	- 1. 16	5, 69	1. 2131	0. 9943	9. 6482	0. 8413
25	1. 19	+ 3. 29	6, 30	1. 2171	0. 9809	9. 6502	0. 8400
26	2. 14	8. 5	7, 24	1. 2209	0. 9668	9. 6521	0. 8387
27	3. 10	12. 16	1. 8, 49	1. 2246	0. 9522	9. 6541	0. 8374
28	4. 9	15. 43	9, 83	+1. 2281	-0. 9369	+9. 6559	+0. 8361
29	5. 10	18. 10	10, 91	1. 2315	0. 9209	9. 6578	0. 8349
30	6. 12	19. 25	11, 44	1. 2347	0. 9042	9. 6596	0. 8337
31	7. 14	19. 20	11. 25	1. 2378	0. 8867	9. 6614	0. 8325
				1, 2407	0. 8683	9. 6632	0. 8314

☾ Perig. 4^d.

☾ Apog. 16^d.

☾ Perig. 31^d.

SEPTEMBER 1831.

Days of the Month.	Astronomical Week Days.	At Greenwich Apparent Noon.				At Greenwich Mean Noon.				Days of the Year from Jan. 1.
		Mean Time.	Hourly Difference	Double the Sun's daily Var. in Declin.	The Sun's Semidiameter passing the Meridian in Sidereal Time.	Sidereal Time.	Mean Equinoctial Time, adding + 0 ^h 22 ^m 9 ^s 14.	The Sun's Semidiameter.		
									h m s	
1	♈	0. 0. 0, 9	0, 775	2607	1. 4, 41	10. 39. 36, 04	162	15. 53, 18	243	
2	♏	23* 59. 42, 3	0, 788	2624	4, 36	43. 32, 59	163	53, 42	244	
3	♏	59. 23, 4	0, 796	2640	4, 32	47. 29, 15	164	53, 66	245	
4	♏	23* 59. 4, 3	0, 813	2654	1. 4, 28	10. 51. 25, 70	165	15. 53, 90	246	
5	♏	58. 44, 8	0, 817	2668	4, 25	55. 22, 25	166	54, 14	247	
6	♏	58. 25, 2	0, 829	2682	4, 22	59. 18, 81	167	54, 39	248	
7	♏	58. 5, 3	0, 833	2694	4, 19	11. 3. 15, 36	168	54, 63	249	
8	♏	57. 45, 3	0, 846	2707	4, 16	7. 11, 91	169	54, 88	250	
9	♏	57. 25, 0	0, 850	2718	4, 13	11. 8, 46	170	55, 14	251	
10	♏	57. 4, 6	0, 858	2728	4, 11	15. 5, 02	171	55, 38	252	
11	♏	23* 56. 44, 0	0, 863	2739	1. 4, 09	11. 19. 1, 57	172	15. 55, 63	253	
12	♏	56. 23, 3	0, 871	2748	4, 08	22. 58, 12	173	55, 88	254	
13	♏	56. 2, 4	0, 871	2757	4, 06	26. 54, 68	174	56, 13	255	
14	♏	55. 41, 5	0, 875	2765	4, 05	30. 51, 23	175	56, 39	256	
15	♏	55. 20, 5	0, 879	2772	4, 04	34. 47, 78	176	56, 66	257	
16	♏	54. 59, 4	0, 883	2779	4, 04	38. 44, 34	177	56, 92	258	
17	♏	54. 38, 2	0, 883	2784	4, 03	42. 40, 89	178	57, 19	259	
18	♏	23* 54. 17, 0	0, 879	2789	1. 4, 03	11. 46. 37, 44	179	15. 57, 45	260	
19	♏	53. 55, 9	0, 883	2795	4, 03	50. 33, 99	180	57, 72	261	
20	♏	53. 34, 7	0, 879	2799	4, 04	54. 30, 55	181	57, 98	262	
21	♏	53. 13, 6	0, 875	2802	4, 05	58. 27, 10	182	58, 25	263	
22	♏	52. 52, 6	0, 871	2805	4, 06	12. 2. 23, 65	183	58, 52	264	
23	♏	52. 31, 7	0, 867	2807	4, 08	6. 20, 20	184	58, 79	265	
24	♏	52. 10, 9	0, 863	2809	4, 10	10. 16, 76	185	59, 07	266	
25	♏	23* 51. 50, 2	0, 854	2810	1. 4, 12	12. 14. 13, 31	186	15. 59, 34	267	
26	♏	51. 29, 7	0, 846	2810	4, 14	18. 9, 86	187	59, 62	268	
27	♏	51. 9, 4	0, 833	2809	4, 17	22. 6, 41	188	59, 90	269	
28	♏	50. 49, 4	0, 825	2809	4, 20	26. 2, 96	189	16. 0, 17	270	
29	♏	50. 29, 6	0, 817	2807	4, 24	29. 59, 52	190	0, 45	271	
30	♏	50. 10, 0	0, 804	2804	4, 27	33. 56, 07	191	0, 73	272	
		49. 50, 7		2802	4, 31	37. 52, 62	192	1, 01	273	

For Mean Time of passage sub. 0^h 18

SEPTEMBER 1831.

THE MOON'S			At Greenwich Mean Midnight.			
Right Asc. at the Time of her Transit.	Declin. at the Time of her Transit.	Semidiameter passing the Meridian in Sidereal Time.	Relative to the Corrections of the Places of the Fixed Stars,			
			LOGARITHMS			
			OF			
			A	B	C	D
h m	° /	m s				
7. 14	+19. 20	1. 11, 25	+1. 2407	-0. 8683	+9. 6632	+0. 831
8. 16	17. 56	10, 33	1. 2435	0. 8489	9. 6649	0. 830
9. 16	15. 23	8, 85	1. 2461	0. 8285	9. 6666	0. 829
10. 13	11. 55	1. 7, 18	+1. 2486	-0. 8069	+9. 6683	+0. 828
6	.....	....	1. 2510	0. 7840	9. 6700	0. 826
11. 8	7. 50	5, 57	1. 2532	0. 7598	9. 6716	0. 825
12. 0	+ 3. 25	4, 24	1. 2553	0. 7340	9. 6733	0. 824
12. 51	- 1. 4	3, 34	1. 2573	0. 7064	9. 6749	0. 823
13. 40	5. 22	2, 88	1. 2591	0. 6767	9. 6765	0. 823
14. 29	9. 20	2, 82	1. 2609	0. 6447	9. 6781	0. 822
15. 18	12. 50	1. 3, 11	+1. 2624	-0. 6101	+9. 6797	+0. 821
16. 7	15. 42	3, 64	1. 2639	0. 5723	9. 6813	0. 820
16. 58	17. 51	4, 29	1. 2652	0. 5307	9. 6828	0. 819
17. 49	19. 11	4, 94	1. 2664	0. 4845	9. 6843	0. 819
18. 41	19. 36	5, 48	1. 2674	0. 4327	9. 6858	0. 818
19. 34	19. 5	5, 83	1. 2684	0. 3737	9. 6873	0. 817
20. 27	17. 35	5, 95	1. 2692	0. 3052	9. 6887	0. 816
21. 21	15. 8	1. 5, 93	+1. 2698	-0. 2236	+9. 6902	+0. 816
22. 15	11. 48	5, 87	1. 2704	0. 1229	9. 6917	0. 815
23. 9	7. 45	5, 92	1. 2708	9. 9913	9. 6931	0. 815
0. 3	- 3. 9	6, 22	1. 2711	9. 8012	9. 6946	0. 814
0. 58	+ 1. 43	6, 82	1. 2712	-9. 4547	9. 6961	0. 814
1. 54	6. 33	7, 73	1. 2713	+8. 8006	9. 6975	0. 813
2. 51	11. 2	8, 87	1. 2712	9. 6144	9. 6989	0. 813
3. 50	14. 51	1. 10, 05	+1. 2710	+9. 8808	+9. 7003	+0. 813
4. 51	17. 41	10, 99	1. 2707	0. 0447	9. 7018	0. 813
5. 53	19. 19	11, 42	1. 2702	0. 1634	9. 7032	0. 812
6. 55	19. 37	11, 14	1. 2696	0. 2564	9. 7046	0. 812
7. 57	18. 38	10, 20	1. 2689	0. 3330	9. 7060	0. 812
8. 56	16. 27	8, 76	1. 2680	0. 3980	9. 7074	0. 812
9. 53	13. 20	7, 11	1. 2670	0. 4544	9. 7089	0. 812
☾ Apog. 13 ^d .			☾ Perig. 25 ^d .			

OCTOBER 1831.

Days of the Month.	Astronomical Week Days.	At Greenwich Apparent Noon.				At Greenwich Mean Noon.				Days of the Year from Jan. 1.		
		Mean Time.	Hourly Dif- ference —	Double the Sun's daily Var. in Declin —	The Sun's Semidiameter passing the Meridian in Sidereal Time.	Sidereal Time.	Mean Equinoctial Time, adding + 0 ^s . 229714.	The Sun's Semi- diameter.				
h	m	s	s	"	m	s	h	m	s	Days.	'	"
1	h	23 ^s 49. 50, 7		2802	1. 4, 31		12. 37. 52, 62	192	16. 1, 01		273	
			0, 792									
2	o	23 ^s 49. 31, 7		2798	1. 4, 36		12. 41. 49, 18	193	16. 1, 28		274	
			0, 779									
3	D	49. 13, 0		2793	4, 40		45. 45, 73	194	1, 56		275	
			0, 763									
4	a	48. 54, 7		2787	4, 45		49. 42, 28	195	1, 83		276	
			0, 750									
5	x	48. 36, 7		2781	4, 50		53. 38, 84	196	2, 11		277	
			0, 733									
6	z	48. 19, 1		2774	4, 56		57. 35, 39	197	2, 38		278	
			0, 721									
7	e	48. 1, 8		2767	4, 62		13. 1. 31, 94	198	2, 66		279	
			0, 704									
8	h	47. 44, 9		2758	4, 68		5. 28, 49	199	2, 94		280	
			0, 683									
9	o	23 ^s 47. 28, 5		2748	1. 4, 74		13. 9. 25, 04	200	16. 3, 22		281	
			0, 671									
10	D	47. 12, 4		2739	4, 81		13. 21. 60	201	3, 50		282	
			0, 650									
11	a	46. 56, 8		2728	4, 88		17. 18, 15	202	3, 78		283	
			0, 629									
12	x	46. 41, 7		2716	4, 95		21. 14, 70	203	4, 05		284	
			0, 608									
13	z	46. 27, 1		2703	5, 02		25. 11, 26	204	4, 33		285	
			0, 592									
14	e	46. 12, 9		2690	5, 10		29. 7, 81	205	4, 60		286	
			0, 567									
15	h	45. 59, 3		2677	5, 18		33. 4, 36	206	4, 87		287	
			0, 546									
16	o	23 ^s 45. 46, 2		2662	1. 5, 26		13. 37. 0, 91	207	16. 5, 14		288	
			0, 521									
17	D	45. 33, 7		2646	5, 35		40. 57, 47	208	5, 41		289	
			0, 500									
18	a	45. 21, 7		2630	5, 44		44. 54, 02	209	5, 69		290	
			0, 475									
19	x	45. 10, 3		2613	5, 53		48. 50, 58	210	5, 96		291	
			0, 450									
20	z	44. 59, 5		2596	5, 62		52. 47, 13	211	6, 23		292	
			0, 425									
21	e	44. 49, 3		2578	5, 71		56. 43, 68	212	6, 50		293	
			0, 396									
22	h	44. 39, 8		2558	5, 81		14. 0. 40, 24	213	6, 77		294	
			0, 367									
23	o	23 ^s 44. 31, 0		2538	1. 5, 90		14. 4. 36, 79	214	16. 7, 03		295	
			0, 338									
24	D	44. 22, 9		2518	6, 00		8. 33, 34	215	7, 29		296	
			0, 308									
25	a	44. 15, 5		2497	6, 11		12. 29, 90	216	7, 55		297	
			0, 279									
26	x	44. 8, 8		2475	6, 21		16. 26, 45	217	7, 81		298	
			0, 250									
27	z	44. 2, 8		2452	6, 32		20. 23, 01	218	8, 07		299	
			0, 213									
28	e	43. 57, 7		2428	6, 43		24. 19, 56	219	8, 33		300	
			0, 183									
29	h	43. 53, 3		2404	6, 53		28. 16, 11	220	8, 59		301	
			0, 150									
30	o	23 ^s 43. 49, 7		2379	1. 6, 64		14. 32. 12, 66	221	16. 8, 84		302	
			0, 121									
31	D	43. 46, 8		2352	6, 76		36. 9, 22	222	9, 09		303	
			0, 083									
		43. 41, 8		2324	6, 87		40. 5, 77	223	9, 34		304	

For Mean Time of passage subt. 0^s. 18

OCTOBER 1831.

THE MOON'S			At Greenwich Mean Midnight.			
Right Asc. at the Time of her Transit.	Declin. at the Time of her Transit.	Semidiameter passing the Meridian in Sidereal Time.	Relative to the Corrections of the Places of the Fixed Stars,			
			LOGARITHMS			
			OF			
			A	B	C	D
h m	° '	m s				
9. 53	+13. 20	1. 7, 11	+1. 2670	+0. 4544	+9. 7089	+0. 8123
10. 47	9. 30	1. 5, 54	+1. 2659	+0. 5042	+9. 7103	+0. 8123
11. 39	5. 12	4, 24	1. 2647	0. 5489	9. 7117	0. 8123
12. 30	+ 0. 45	3, 34	1. 2633	0. 5892	9. 7131	0. 8124
♂	....	....	1. 2617	0. 6261	9. 7146	0. 8125
13. 19	- 3. 40	2, 85	1. 2601	0. 6599	9. 7160	0. 8126
14. 8	7. 50	2, 76	1. 2583	0. 6912	9. 7174	0. 8128
14. 57	11. 35	2, 98	1. 2563	0. 7203	9. 7189	0. 8130
15. 47	14. 46	1. 3, 45	+1. 2543	+0. 7475	+9. 7204	+0. 8133
16. 37	17. 15	4, 02	1. 2521	0. 7729	9. 7219	0. 8135
17. 28	18. 56	4, 58	1. 2497	0. 7969	9. 7233	0. 8139
18. 20	19. 44	5, 04	1. 2472	0. 8194	9. 7248	0. 8142
19. 12	19. 37	5, 35	1. 2446	0. 8408	9. 7263	0. 8146
20. 4	18. 32	5, 50	1. 2418	0. 8610	9. 7278	0. 8150
20. 57	16. 30	5, 54	1. 2388	0. 8802	9. 7293	0. 8155
21. 50	13. 36	1. 5, 57	+1. 2357	+0. 8985	+9. 7308	+0. 8160
22. 43	9. 53	5, 71	1. 2325	0. 9159	9. 7324	0. 8165
23. 37	5. 30	6, 09	1. 2291	0. 9325	9. 7339	0. 8171
0. 31	- 0. 40	6, 82	1. 2255	0. 9484	9. 7355	0. 8177
1. 27	+ 4. 21	7, 91	1. 2217	0. 9637	9. 7370	0. 8183
2. 25	9. 13	9, 26	1. 2178	0. 9783	9. 7386	0. 8189
3. 25	13. 31	10, 68	1. 2138	0. 9923	9. 7402	0. 8195
4. 28	16. 55	1. 11, 87	+1. 2095	+1. 0057	+9. 7418	+0. 8202
5. 32	19. 6	12, 51	1. 2051	1. 0186	9. 7435	0. 8209
6. 35	19. 55	12, 28	1. 2005	1. 0310	9. 7451	0. 8216
7. 38	19. 17	11, 19	1. 1957	1. 0430	9. 7468	0. 8224
8. 39	17. 26	9, 50	1. 1907	1. 0545	9. 7485	0. 8231
9. 36	14. 32	7, 58	1. 1855	1. 0656	9. 7502	0. 8239
10. 31	10. 54	5, 75	1. 1802	1. 0763	9. 7519	0. 8247
11. 23	6. 46	1. 4, 26	+1. 1746	+1. 0866	+9. 7536	+0. 8255
12. 13	+ 2. 22	3, 20	1. 1688	1. 0966	9. 7553	0. 8263
13. 1	- 2. 4	2, 62	1. 1628	1. 1062	9. 7571	0. 8273

♄ Apog. 11^d.♄ Perig. 23^d.

NOVEMBER 1831.

Days of the Month.	Astronomical Week Days.	At Greenwich Apparent Noon.					At Greenwich Mean Noon.				
		Mean Time.	Hourly Dif- ference — +	Double the Sun's daily Var. in Declin. — +	The Sun's Semidiameter passing the Meridian in Sidereal Time:		Sidereal Time.	Mean Equinoctial Time, adding + 0 ^h 22 ^m 37 ^s 14.	The Sun's Semi- diameter.		
		h m s	s	"	m s		h m s	Days.	' "		
1	♈	23 ^h 43. 44. 8	0, 050	2324	1. 6, 87		14. 40. 5, 77	223	16. 9, 34	30	
2	♈	43. 43. 6	0, 017	2297	6, 98		44. 2, 33	224	9, 59	30	
3	♈	43. 43. 2	0, 017	2269	7, 10		47. 58, 88	225	9, 83	30	
4	♈	43. 43. 6	0, 054	2239	7, 21		51. 55, 43	226	10, 08	30	
5	♈	43. 44. 9	0, 083	2208	7, 33		55. 51, 99	227	10, 32	30	
6	♈	23 ^h 43. 46. 9	0, 121	2177	1. 7, 45		14. 59. 48, 54	228	16. 10, 55	30	
7	♈	43. 49. 8	0, 154	2145	7, 57		15. 3. 45, 10	229	10, 79	30	
8	♈	43. 53. 5	0, 192	2111	7, 69		7. 41, 65	230	11, 02	30	
9	♈	43. 58. 1	0, 225	2078	7, 81		11. 38, 21	231	11, 25	30	
10	♈	44. 3. 5	0, 258	2044	7, 93		15. 34, 76	232	11, 48	30	
11	♈	44. 9. 7	0, 292	2008	8, 05		19. 31, 32	233	11, 70	30	
12	♈	44. 16. 7	0, 329	1971	8, 17		23. 27, 87	234	11, 92	30	
13	♈	23 ^h 44. 24. 6	0, 363	1934	1. 8, 29		15. 27. 24, 43	235	16. 12, 13	30	
14	♈	44. 33. 3	0, 396	1897	8, 40		31. 20, 98	236	12, 34	30	
15	♈	44. 42. 8	0, 429	1858	8, 52		35. 17, 54	237	12, 55	30	
16	♈	44. 53. 1	0, 467	1818	8, 64		39. 14, 09	238	12, 76	30	
17	♈	45. 4. 3	0, 500	1779	8, 75		43. 10, 65	239	12, 96	30	
18	♈	45. 16. 3	0, 533	1738	8, 87		47. 7, 20	240	13, 16	30	
19	♈	45. 29. 1	0, 567	1696	8, 99		51. 3, 76	241	13, 36	30	
20	♈	23 ^h 45. 42. 7	0, 604	1654	1. 9, 10		15. 55. 0, 31	242	16. 13, 56	30	
21	♈	45. 57. 1	0, 638	1611	9, 21		58. 56, 87	243	13, 75	30	
22	♈	46. 12. 4	0, 671	1567	9, 32		16. 2. 53, 43	244	13, 94	30	
23	♈	46. 28. 5	0, 704	1522	9, 43		6. 49, 98	245	14, 12	30	
24	♈	46. 45. 4	0, 738	1478	9, 54		10. 46, 54	246	14, 30	30	
25	♈	47. 3. 1	0, 767	1432	9, 65		14. 43, 10	247	14, 48	30	
26	♈	47. 21. 5	0, 804	1386	9, 75		18. 39, 65	248	14, 65	30	
27	♈	23 ^h 47. 40. 8	0, 833	1339	1. 9, 85		16. 22. 36, 20	249	16. 14, 82	30	
28	♈	48. 0. 8	0, 863	1290	9, 95		26. 32, 76	250	14, 98	30	
29	♈	48. 21. 5	0, 892	1242	10, 05		30. 29, 32	251	15, 14	30	
30	♈	48. 42. 9	0, 925	1194	10, 14		34. 25, 87	252	15, 29	30	
		49. 5. 1		1144	10, 23		38. 22, 43	253	15, 44	30	

For Mean Time of passage subt. 0^h 19

NOVEMBER 1831.

Days of the Month.	THE MOON'S			At Greenwich Mean Midnight.			
	Right Asc.	Declin.	Semidiameter	Relative to the			
	at the Time of her Transit.	at the Time of her Transit.	passing the Meridian in Sidereal Time.	Corrections of the Places of the Fixed Stars,			
	LOGARITHMS			OF			
	A	B	C	D			
	h m	° '	m s				
1	13. 1	— 2. 4	1. 2, 62	+1. 1628	+1. 1062	+9. 7571	+0. 8272
2	13. 50	6. 22	2, 45	1. 1566	1. 1154	9. 7588	0. 8280
3	6	.....	.....	1. 1501	1. 1244	9. 7606	0. 8288
4	14. 39	10. 19	2, 66	1. 1434	1. 1330	9. 7624	0. 8296
5	15. 28	13. 45	3, 11	1. 1365	1. 1415	9. 7642	0. 8305
6	16. 18	16. 34	1. 3, 71	+1. 1293	+1. 1494	+9. 7660	+0. 8313
7	17. 9	18. 36	4, 31	1. 1218	1. 1573	9. 7679	0. 8321
8	18. 0	19. 46	4, 78	1. 1141	1. 1648	9. 7698	0. 8329
9	18. 52	20. 1	5, 04	1. 1061	1. 1720	9. 7717	0. 8338
10	19. 44	19. 20	5, 09	1. 0978	1. 1791	9. 7736	0. 8346
11	20. 36	17. 42	4, 98	1. 0892	1. 1858	9. 7755	0. 8355
12	21. 28	15. 12	4, 85	1. 0803	1. 1924	9. 7774	0. 8363
13	22. 19	11. 54	1. 4, 87	+1. 0711	+1. 1987	+9. 7793	+0. 8371
14	23. 11	7. 52	5, 15	1. 0615	1. 2048	9. 7812	0. 8379
15	0. 4	— 3. 19	5, 81	1. 0516	1. 2107	9. 7832	0. 8387
16	0. 58	+ 1. 37	6, 93	1. 0413	1. 2163	9. 7851	0. 8394
17	1. 54	6. 38	8, 50	1. 0308	1. 2218	9. 7871	0. 8402
18	2. 54	11. 22	10, 34	1. 0195	1. 2271	9. 7891	0. 8410
19	3. 56	15. 26	12, 16	1. 0079	1. 2322	9. 7911	0. 8417
20	5. 1	18. 23	1. 13, 50	+0. 9959	+1. 2370	+9. 7931	+0. 8424
21	6. 8	19. 55	13, 94	0. 9835	1. 2417	9. 7952	0. 8431
22	7. 14	19. 56	13, 15	0. 9705	1. 2463	9. 7972	0. 8438
23	8. 17	18. 30	11, 45	0. 9569	1. 2506	9. 7992	0. 8445
24	9. 18	15. 52	9, 26	0. 9428	1. 2548	9. 8013	0. 8451
25	10. 14	12. 21	7, 02	0. 9279	1. 2588	9. 8034	0. 8457
26	11. 8	8. 17	5, 07	0. 9126	1. 2626	9. 8054	0. 8463
27	11. 58	+ 3. 55	1. 3, 58	+0. 8965	+1. 2662	+9. 8075	+0. 8468
28	12. 47	— 0. 32	2, 71	0. 8796	1. 2697	9. 8096	0. 8473
29	13. 35	4. 54	2, 27	0. 8618	1. 2731	9. 8117	0. 8478
30	14. 23	8. 58	2, 33	0. 8432	1. 2762	9. 8138	0. 8483
	15. 12	12. 38	2, 75	0. 8236	1. 2793	9. 8159	0. 8488

☾ Apog. 8^d.

☾ Perig. 20^d.

DECEMBER 1831.

Days of the Month.	Astronomical Week Days.	At Greenwich Apparent Noon.				At Greenwich Mean Noon.			
		Mean Time.	Hourly Difference +	Double the Sun's daily Var. in Declin. — +	The Sun's Semidiameter passing the Meridian in Sidereal Time.	Sidereal Time.	Mean Equinoctial Time, adding + 0 ^s . 229714.	The Sun's Semidiameter.	
		h m s	s	"	m s	h m s	Days.	' "	
1	♈	23 ^s 49. 5, 1		1144	1. 10, 23	16. 38. 22, 43	253	16. 15, 44	
2	♏	49. 27, 9	0, 950	1093	10, 31	42. 18, 98	254	15, 58	
3	♐	49. 51, 3	0, 975	1042	10, 40	46. 15, 54	255	15, 72	
			1, 000						
4	♐	23 ^s 50. 15, 3		991	1. 10, 48	16. 50. 12, 10	256	16. 15, 86	
5	♑	50. 39, 9	1, 025	939	10, 56	54. 8, 65	257	15, 99	
6	♏	51. 5, 1	1, 050	886	10, 63	58. 5, 21	258	16, 12	
7	♏	51. 30, 8	1, 071	834	10, 70	17. 2. 1, 77	259	16, 25	
8	♈	51. 57, 0	1, 092	781	10, 77	5. 58, 32	260	16, 36	
9	♏	52. 23, 7	1, 113	727	10, 84	9. 54, 88	261	16, 47	
10	♐	52. 50, 8	1, 129	672	10, 89	13. 51, 44	262	16, 58	
			1, 142						
11	♐	23 ^s 53. 18, 2		617	1. 10, 94	17. 17. 47, 99	263	16. 16, 69	
12	♑	53. 46, 1	1, 163	563	10, 99	21. 44, 55	264	16, 79	
13	♏	54. 14, 4	1, 179	508	11, 04	25. 41, 11	265	16, 89	
14	♏	54. 42, 9	1, 188	452	11, 09	29. 37, 67	266	16, 98	
15	♈	55. 11, 6	1, 196	397	11, 13	33. 34, 22	267	17, 07	
16	♏	55. 40, 6	1, 208	341	11, 16	37. 30, 78	268	17, 15	
17	♐	56. 9, 9	1, 221	284	10, 19	41. 27, 33	269	17, 23	
			1, 225						
18	♐	23 ^s 56. 39, 3		228	1. 11, 21	17. 45. 23, 89	270	16. 17, 31	
19	♑	57. 8, 9	1, 233	172	11, 23	49. 20, 45	271	17, 37	
20	♏	57. 38, 6	1, 238	116	11, 25	53. 17, 01	272	17, 43	
21	♏	58. 8, 5	1, 246	60	11, 26	57. 13, 56	273	17, 49	
22	♈	58. 38, 4	1, 246	3	11, 26	18. 1. 10, 12	274	17, 54	
23	♏	59. 8, 3	1, 246	54	11, 26	5. 6, 68	275	17, 59	
24	♐	23 ^s 59. 38, 2		111	11, 26	9. 3, 23	276	17, 63	
			1, 250						
25	♐	0. 0. 8, 2		168	1. 11, 25	18. 12. 59, 79	277	16. 17, 66	
26	♑	0. 38, 1	1, 246	224	11, 24	16. 56, 35	278	17, 69	
27	♏	1. 7, 9	1, 242	280	11, 22	20. 52, 90	279	17, 72	
28	♏	1. 37, 6	1, 238	337	11, 20	24. 49, 46	280	17, 74	
29	♈	2. 7, 2	1, 233	393	11, 17	28. 46, 02	281	17, 76	
			1, 225						
30	♏	2. 36, 6	1, 213	448	11, 14	32. 42, 57	282	17, 77	
31	♐	3. 5, 7		504	11, 11	36. 39, 13	283	17, 78	
		3. 34, 6	1, 204	560	11, 08	40. 35, 69	284	17, 77	

Mean Time of passage subt. 0^s. 19

DECEMBER 1831.

Days of the Month.	THE MOON'S			At Greenwich Mean Midnight.			
	Right Asc. at the Time of her Transit.	Declin. at the Time of her Transit.	Semidiameter passing the Meridian in Sidereal Time.	Relative to the Corrections of the Places of the Fixed Stars,			
				LOGARITHMS			
				OF			
	A	B	C	D			
	h m	o ' "	m s				
1	15. 12	-12. 38	1. 2, 75	+0. 8236	+1. 2793	+9. 8159	+0. 8487
2	16. 1	15. 43	3. 40	0. 8029	1. 2821	9. 8180	0. 8491
3	6	.....	....	0. 7810	1. 2848	9. 8201	0. 8495
4	16. 51	18. 5	1. 4, 05	+0. 7578	+1. 2874	+9. 8222	+0. 8498
5	17. 42	19. 36	4. 61	0. 7331	1. 2898	9. 8243	0. 8501
6	18. 34	20. 13	4. 94	0. 7068	1. 2920	9. 8264	0. 8504
7	19. 26	19. 52	4. 98	0. 6786	1. 2941	9. 8285	0. 8506
8	20. 18	18. 36	4. 76	0. 6484	1. 2961	9. 8306	0. 8508
9	21. 10	16. 26	4. 43	0. 6157	1. 2979	9. 8327	0. 8509
10	22. 0	13. 28	4. 15	0. 5802	1. 2996	9. 8349	0. 8510
11	22. 51	9. 47	1. 4, 08	+0. 5414	+1. 3011	+9. 8370	+0. 8511
12	23. 42	5. 33	4. 42	0. 4986	1. 3025	9. 8391	0. 8511
13	0. 33	- 0. 55	5. 27	0. 4509	1. 3038	9. 8412	0. 8511
14	1. 26	+ 3. 58	6. 64	0. 3973	1. 3049	9. 8433	0. 8511
15	2. 22	8. 47	8. 54	0. 3359	1. 3059	9. 8454	0. 8510
16	3. 22	13. 13	10. 73	0. 2642	1. 3067	9. 8475	0. 8509
17	4. 25	16. 53	12. 80	0. 1781	1. 3074	9. 8496	0. 8507
18	5. 31	19. 20	1. 14, 29	+0. 0703	+1. 3079	+9. 8517	+0. 8505
19	6. 39	20. 14	14. 61	9. 9266	1. 3084	9. 8537	0. 8502
20	7. 46	19. 32	13. 66	9. 7099	1. 3087	9. 8558	0. 8499
21	8. 51	17. 24	11. 70	+9. 2572	1. 3088	9. 8579	0. 8496
22	9. 51	14. 7	9. 26	-9. 1794	1. 3088	9. 8599	0. 8492
23	10. 48	10. 7	6. 88	9. 6840	1. 3087	9. 8619	0. 8488
24	11. 41	5. 42	4. 92	9. 9112	1. 3084	9. 8630	0. 8483
25	12. 31	+ 1. 8	1. 3, 58	-0. 0595	+1. 3080	+9. 8659	+0. 8478
26	13. 20	- 3. 20	2. 72	0. 1697	1. 3074	9. 8679	0. 8473
27	14. 8	7. 33	2. 43	0. 2575	1. 3068	9. 8699	0. 8467
28	14. 56	11. 23	2. 63	0. 3304	1. 3059	9. 8719	0. 8461
29	15. 45	14. 41	3. 11	0. 3926	1. 3050	9. 8739	0. 8454
30	16. 35	17. 19	3. 77	0. 4470	1. 3039	9. 8758	0. 8447
31	17. 25	19. 8	4. 43	0. 4951	1. 3026	9. 8778	0. 8439
	18. 17	20. 8	4. 90	0. 5383	1. 3012	9. 8797	0. 8433
☾ Apog. 5 ^d .				☾ Perig. 19 ^d .			

OBLIQUITY OF THE ECLIPTIC, &c.

1831.	Apparent Obliquity.	Paral- lax. ☉	Aberra- tion. ☉	Equat. of Equin.		Mean Longitude of ☉'s Node.
				In Long.	In A.R. in Time.	
Jan. 1	23. 27. 33, 12	8, 81	-20, 60	- 7, 64	-0, 47	153. 40, 1
11	33, 21	8, 81	20, 59	7, 48	0, 46	153. 8, 3
21	33, 36	8, 80	20, 58	7, 40	0, 45	152. 36, 6
31	33, 52	8, 79	20, 55	7, 43	0, 45	152. 4, 8
Feb. 10	33, 67	8, 77	20, 51	7, 58	0, 46	151. 33, 0
20	33, 83	8, 75	20, 47	7, 86	0, 48	151. 1, 2
Mar. 2	23. 27. 34, 00	8, 73	-20, 42	- 8, 22	-0, 50	150. 9, 5
12	34, 12	8, 71	20, 37	8, 72	0, 53	149. 57, 7
22	34, 20	8, 69	20, 31	9, 23	0, 56	149. 25, 9
Apr. 1	34, 21	8, 66	20, 25	9, 74	0, 59	148. 54, 2
11	34, 20	8, 64	20, 21	10, 20	0, 62	148. 22, 4
21	34, 14	8, 61	20, 14	10, 58	0, 64	147. 50, 6
May 1	23. 27. 34, 03	8, 59	-20, 08	-10, 82	-0, 66	147. 18, 8
11	33, 92	8, 57	20, 04	10, 94	0, 67	146. 47, 1
21	33, 81	8, 55	20, 00	10, 94	0, 67	146. 15, 3
31	33, 74	8, 54	19, 96	10, 88	0, 66	145. 43, 5
June 10	33, 69	8, 53	19, 94	10, 73	0, 65	145. 11, 7
20	33, 69	8, 52	19, 92	10, 54	0, 64	144. 40, 0
30	33, 72	8, 52	19, 92	10, 33	0, 63	144. 8, 2
July 10	23. 27. 33, 83	8, 52	-19, 92	-10, 16	-0, 62	143. 36, 4
20	33, 97	8, 52	19, 93	10, 05	0, 61	143. 4, 7
30	34, 15	8, 53	19, 96	10, 03	0, 61	142. 32, 9
Aug. 9	34, 34	8, 54	19, 98	10, 13	0, 62	142. 1, 1
19	34, 52	8, 56	20, 02	10, 33	0, 63	141. 29, 3
29	34, 70	8, 58	20, 06	10, 62	0, 65	140. 57, 6
Sep. 8	23. 27. 34, 84	8, 60	-20, 11	-11, 00	-0, 67	140. 25, 8
18	34, 94	8, 62	20, 17	11, 44	0, 70	139. 54, 0
28	34, 98	8, 65	20, 22	11, 90	0, 73	139. 22, 2
Oct. 8	34, 98	8, 67	20, 28	12, 34	0, 75	138. 50, 5
18	34, 94	8, 70	20, 34	12, 72	0, 78	138. 18, 7
28	34, 85	8, 72	20, 40	13, 01	0, 80	137. 46, 9
Nov. 7	23. 27. 34, 75	8, 74	-20, 45	-13, 19	-0, 81	137. 15, 2
17	34, 65	8, 76	20, 50	13, 25	0, 81	136. 43, 4
27	34, 57	8, 78	20, 53	13, 19	0, 81	136. 11, 6
Dec. 7	34, 49	8, 79	20, 56	13, 03	0, 80	135. 39, 8
17	34, 48	8, 80	20, 58	12, 81	0, 78	135. 8, 1
27	34, 53	8, 81	20, 59	12, 47	0, 77	134. 36, 3
37	34, 63	8, 81	20, 59	12, 25	0, 76	134. 4, 5

Mean = 23°. 27'. 42", 16 on January 1, 1831.

Mean Daily Motion = -3',

The Parallaxes and Logarithmic Distances of the Planets.

1831.	MERCURY.		VENUS.		1831.	MERCURY.		VENUS.	
	Horiz. Paral-lax.	Log. Dist. from the Earth.	Horiz. Paral-lax.	Log. Dist. from the Earth.		Horiz. Paral-lax.	Log. Dist. from the Earth.	Horiz. Paral-lax.	Log. Dist. from the Earth.
	"		"			"		"	
Jan. 1	7, 21	0. 0798	5, 07	0. 2326	July 5	7, 55	0. 0594	9, 69	9. 9510
6	7, 92	0. 0387	5, 08	0. 2319	10	6, 99	0. 0933	10, 15	9. 9312
11	8, 97	9. 9848	5, 09	0. 2310	15	6, 63	0. 1161	10, 65	9. 9102
16	10, 42	9. 9198	5, 10	0. 2298	20	6, 47	0. 1265	11, 20	9. 8882
21	12, 04	9. 8570	5, 12	0. 2284	25	6, 47	0. 1265	11, 82	9. 8649
26	13, 11	9. 8200	5, 14	0. 2268	30	6, 58	0. 1190	12, 51	9. 8403
31	12, 97	9. 8246	5, 16	0. 2248	Aug. 4	6, 78	0. 1060	13, 28	9. 8144
Feb. 5	11, 99	9. 8587	5, 19	0. 2227	9	7, 06	0. 0889	14, 14	9. 7872
10	10, 84	9. 9027	5, 22	0. 2202	14	7, 40	0. 0685	15, 10	9. 7584
15	9, 82	9. 9455	5, 25	0. 2174	19	7, 81	0. 0447	16, 20	9. 7281
20	9, 00	9. 9834	5, 29	0. 2143	24	8, 32	0. 0174	17, 43	9. 6963
25	8, 35	0. 0161	5, 33	0. 2109	29	8, 94	9. 9864	18, 81	9. 6631
Mar. 2	7, 83	0. 0440	5, 37	0. 2072	Sept. 3	9, 69	9. 9514	20, 36	9. 6287
7	7, 42	0. 0673	5, 42	0. 2032	8	10, 59	9. 9126	22, 08	9. 5936
12	7, 09	0. 0872	5, 48	0. 1987	13	11, 64	9. 8717	23, 94	9. 5585
17	6, 82	0. 1035	5, 54	0. 1940	18	12, 66	9. 8351	25, 89	9. 5244
22	6, 62	0. 1165	5, 61	0. 1888	23	13, 28	9. 8143	27, 81	9. 4933
27	6, 49	0. 1256	5, 68	0. 1832	28	13, 01	9. 8233	29, 51	9. 4675
Apr. 1	6, 43	0. 1292	5, 76	0. 1772	Oct. 3	11, 66	9. 8707	30, 75	9. 4496
6	6, 48	0. 1258	5, 85	0. 1707	8	10, 02	9. 9366	31, 30	9. 4419
11	6, 68	0. 1126	5, 94	0. 1638	13	8, 62	0. 0019	31, 06	9. 4453
16	7, 08	0. 0873	6, 04	0. 1564	18	7, 63	0. 0549	30, 06	9. 4595
21	7, 73	0. 0493	6, 15	0. 1485	23	6, 97	0. 0942	28, 52	9. 4823
26	8, 63	0. 0014	6, 27	0. 1400	28	6, 54	0. 1219	26, 68	9. 5113
May 1	9, 79	9. 9469	6, 41	0. 1310	Nov. 2	6, 27	0. 1464	24, 75	9. 5439
6	11, 16	9. 8900	6, 55	0. 1214	7	6, 10	0. 1524	22, 88	9. 5781
11	12, 65	9. 8353	6, 70	0. 1112	12	6, 00	0. 1593	21, 13	9. 6126
16	14, 12	9. 7876	6, 87	0. 1003	17	5, 98	0. 1606	19, 54	9. 6465
21	15, 27	9. 7538	7, 06	0. 0888	22	6, 01	0. 1585	18, 12	9. 6794
26	15, 76	9. 7400	7, 26	0. 0767	27	6, 11	0. 1516	16, 85	9. 7109
31	15, 48	9. 7476	7, 48	0. 0638	Dec. 2	6, 27	0. 1403	15, 73	9. 7408
5	14, 51	9. 7757	7, 72	0. 0502	7	6, 52	0. 1233	14, 73	9. 7692
10	13, 21	9. 8167	7, 98	0. 0358	12	6, 88	0. 1002	13, 85	9. 7962
15	11, 82	9. 8649	8, 26	0. 0206	17	7, 40	0. 0685	13, 06	9. 8217
20	10, 49	9. 9168	8, 57	0. 0046	22	8, 15	0. 0264	12, 35	9. 8458
25	9, 32	9. 9680	8, 91	0. 9876	27	9, 23	9. 9722	11, 72	9. 8687
30	8, 34	0. 0163	9, 29	0. 9698	32	10, 69	9. 9085	11, 15	9. 8903

The Parallaxes and Logarithmic Distances of the Planets.
(Continued.)

1831.	MARS.		JUPITER.		1831.	MARS.		JUPITER.	
	Horiz. Parallax.	Log. Dist. from the Earth.	Horiz. Parallax.	Log. Dist. from the Earth.		Horiz. Parallax.	Log. Dist. from the Earth.	Horiz. Parallax.	Log. Dist. from the Earth.
Jan. 1	8, 40	0. 0132	1, 43	0. 7826	July 5	3, 45	0. 3996	2, 05	0.
6	8, 04	0. 0321	1, 43	0. 7838	10	3, 42	0. 4031	2, 07	0.
11	7, 71	0. 0505	1, 42	0. 7846	15	3, 40	0. 4064	2, 09	0.
16	7, 40	0. 0683	1, 42	0. 7850	20	3, 37	0. 4093	2, 11	0.
21	7, 11	0. 0855	1, 42	0. 7850	25	3, 35	0. 4120	2, 13	0.
26	6, 84	0. 1022	1, 42	0. 7846	30	3, 34	0. 4144	2, 14	0.
31	6, 60	0. 1182	1, 43	0. 7839	Aug. 4	3, 32	0. 4166	2, 14	0.
Feb. 5	6, 36	0. 1338	1, 43	0. 7828	9	3, 30	0. 4185	2, 15	0.
10	6, 15	0. 1488	1, 43	0. 7813	14	3, 29	0. 4201	2, 15	0.
15	5, 95	0. 1632	1, 44	0. 7794	19	3, 28	0. 4214	2, 14	0.
20	5, 76	0. 1772	1, 45	0. 7772	24	3, 27	0. 4224	2, 13	0.
25	5, 58	0. 1907	1, 46	0. 7746	29	3, 27	0. 4232	2, 12	0.
Mar. 2	5, 42	0. 2037	1, 47	0. 7717	Sept. 3	3, 26	0. 4237	2, 11	0.
7	5, 26	0. 2162	1, 48	0. 7684	8	3, 26	0. 4240	2, 09	0.
12	5, 12	0. 2282	1, 49	0. 7647	13	3, 26	0. 4240	2, 07	0.
17	4, 99	0. 2398	1, 50	0. 7607	18	3, 27	0. 4237	2, 04	0.
22	4, 86	0. 2510	1, 52	0. 7564	23	3, 27	0. 4232	2, 02	0.
27	4, 74	0. 2617	1, 53	0. 7517	28	3, 27	0. 4224	1, 99	0.
Apr. 1	4, 63	0. 2721	1, 55	0. 7468	Oct. 3	3, 28	0. 4213	1, 96	0.
6	4, 52	0. 2820	1, 57	0. 7415	8	3, 29	0. 4200	1, 93	0.
11	4, 43	0. 2915	1, 59	0. 7360	13	3, 31	0. 4184	1, 90	0.
16	4, 33	0. 3006	1, 61	0. 7301	18	3, 32	0. 4165	1, 87	0.
21	4, 25	0. 3094	1, 64	0. 7241	23	3, 33	0. 4144	1, 84	0.
26	4, 17	0. 3177	1, 66	0. 7178	28	3, 35	0. 4121	1, 81	0.
May 1	4, 09	0. 3257	1, 68	0. 7113	Nov. 2	3, 37	0. 4095	1, 79	0.
6	4, 02	0. 3334	1, 71	0. 7047	7	3, 40	0. 4066	1, 76	0.
11	3, 95	0. 3407	1, 73	0. 6978	12	3, 42	0. 4034	1, 73	0.
16	3, 89	0. 3476	1, 76	0. 6909	17	3, 45	0. 4000	1, 70	0.
21	3, 83	0. 3542	1, 79	0. 6839	22	3, 48	0. 3964	1, 68	0.
26	3, 78	0. 3605	1, 82	0. 6769	27	3, 51	0. 3925	1, 65	0.
31	3, 72	0. 3665	1, 85	0. 6698	Dec. 2	3, 54	0. 3884	1, 63	0.
June 5	3, 68	0. 3721	1, 88	0. 6629	7	3, 58	0. 3840	1, 61	0.
10	3, 63	0. 3775	1, 91	0. 6560	12	3, 62	0. 3794	1, 59	0.
15	3, 59	0. 3825	1, 94	0. 6493	17	3, 66	0. 3745	1, 57	0.
20	3, 55	0. 3872	1, 97	0. 6429	22	3, 70	0. 3694	1, 55	0.
25	3, 52	0. 3916	2, 00	0. 6368	27	3, 75	0. 3641	1, 54	0.
30	3, 48	0. 3957	2, 03	0. 6310	32	3, 79	0. 3585	1, 52	0.

The Parallaxes and Logarithmic Distances of the Planets.

(Concluded.)

31.	SATURN.		GEORGIAN.		1831.	SATURN.		GEORGIAN.	
	Horiz. Paral-lax.	Log. Dist. from the Earth.	Horiz. Paral-lax.	Log. Dist. from the Earth.		Horiz. Paral-lax.	Log. Dist. from the Earth.	Horiz. Paral-lax.	Log. D from the Earth.
	"		"			"		"	
n. 1	1, 01	0. 9334	0, 42	1. 3168	July 5	0, 87	0. 9979	0, 46	1. 27
6	1, 02	0. 9302	0, 42	1. 3175	10	0, 87	1. 0004	0, 46	1. 27
11	1, 02	0. 9273	0, 42	1. 3181	15	0, 86	1. 0027	0, 46	1. 27
16	1, 03	0. 9247	0, 42	1. 3186	20	0, 86	1. 0048	0, 46	1. 27
21	1, 04	0. 9224	0, 42	1. 3191	25	0, 85	1. 0066	0, 46	1. 27
26	1, 04	0. 9205	0, 42	1. 3193	30	0, 85	1. 0083	0, 46	1. 27
31	1, 04	0. 9189	0, 42	1. 3195	Aug. 4	0, 85	1. 0096	0, 46	1. 27
sb. 5	1, 05	0. 9177	0, 42	1. 3195	9	0, 84	1. 0108	0, 46	1. 27
10	1, 05	0. 9169	0, 42	1. 3191	14	0, 84	1. 0117	0, 46	1. 27
15	1, 05	0. 9165	0, 42	1. 3186	19	0, 84	1. 0123	0, 46	1. 27
20	1, 05	0. 9166	0, 42	1. 3181	24	0, 84	1. 0127	0, 46	1. 27
25	1, 05	0. 9170	0, 42	1. 3176	29	0, 84	1. 0128	0, 46	1. 27
Mar. 2	1, 05	0. 9179	0, 42	1. 3169	Sept. 3	0, 84	1. 0127	0, 46	1. 27
7	1, 04	0. 9191	0, 42	1. 3161	8	0, 84	1. 0123	0, 45	1. 28
12	1, 04	0. 9207	0, 42	1. 3151	13	0, 84	1. 0117	0, 45	1. 28
17	1, 03	0. 9227	0, 42	1. 3139	18	0, 84	1. 0108	0, 45	1. 28
22	1, 03	0. 9250	0, 42	1. 3127	23	0, 85	1. 0096	0, 45	1. 28
27	1, 02	0. 9277	0, 42	1. 3113	28	0, 85	1. 0082	0, 45	1. 28
Apr. 1	1, 02	0. 9306	0, 42	1. 3099	Oct. 3	0, 85	1. 0066	0, 45	1. 28
6	1, 01	0. 9337	0, 43	1. 3083	8	0, 86	1. 0047	0, 45	1. 28
11	1, 00	0. 9371	0, 43	1. 3067	13	0, 86	1. 0026	0, 44	1. 28
16	0, 99	0. 9406	0, 43	1. 3050	18	0, 87	1. 0002	0, 44	1. 28
21	0, 98	0. 9443	0, 43	1. 3033	23	0, 87	0. 9977	0, 44	1. 28
26	0, 97	0. 9481	0, 43	1. 3015	28	0, 88	0. 9949	0, 44	1. 28
May 1	0, 97	0. 9520	0, 43	1. 2997	Nov. 2	0, 88	0. 9919	0, 44	1. 28
6	0, 96	0. 9559	0, 44	1. 2978	7	0, 89	0. 9888	0, 43	1. 30
11	0, 95	0. 9598	0, 44	1. 2960	12	0, 90	0. 9854	0, 43	1. 30
16	0, 94	0. 9638	0, 44	1. 2642	17	0, 90	0. 9820	0, 43	1. 30
21	0, 93	0. 9677	0, 44	1. 2924	22	0, 91	0. 9784	0, 43	1. 30
26	0, 93	0. 9715	0, 44	1. 2907	27	0, 92	0. 9747	0, 43	1. 30
31	0, 92	0. 9753	0, 45	1. 2889	Dec. 2	0, 93	0. 9709	0, 43	1. 30
June 5	0, 91	0. 9789	0, 45	1. 2873	7	0, 93	0. 9670	0, 42	1. 30
10	0, 90	0. 9825	0, 45	1. 2857	12	0, 94	0. 9631	0, 42	1. 30
15	0, 89	0. 9859	0, 45	1. 2842	17	0, 95	0. 9592	0, 42	1. 30
20	0, 89	0. 9892	0, 45	1. 2829	22	0, 96	0. 9553	0, 42	1. 30
25	0, 88	0. 9923	0, 45	1. 2816	27	0, 97	0. 9515	0, 42	1. 30
30	0, 87	0. 9952	0, 45	1. 2803	32	0, 98	0. 9478	0, 42	1. 30

STARS

TO BE

OBSERVED WITH THE MOON.

1830.	Names.	Mag.	R. A.			Declin.
			H. M. S.	M.	O. I.	
5	Moon II. . .	(23)	13. 15. . .	1, 94	- 3. 49	
	α^2 Libræ . .	3	14. 41. 33		15. 20	
	β Libræ . .	2.3	15. 7. 55		8. 45	
6	α Virginis . .	1	13. 16. 18		-10. 17	
	Moon II. . .	(24)	14. 2. . .	1, 94	7. 38	
	β Libræ . .	2.3	15. 7. 55		8. 45	
7	α Virginis . .	1	13. 16. 18		-10. 17	
	Moon II. . .	(25)	14. 49. . .	2, 00	11. 6	
	β Libræ . .	2.3	15. 7. 55		8. 45	
8	α Virginis . .	1	13. 16. 18		-10. 17	
	β Libræ . .	2.3	15. 7. 55		8. 45	
	Moon II. . .	(26)	15. 38. . .	2, 06	14. 7	
9	α^2 Libræ . .	3	14. 41. 33		-15. 20	
	α Scorpii . .	1	16. 19. 4		26. 3	
	Moon II. . .	(27)	16. 28. . .	2, 10	16. 31	
19	(33) Ceti. . .	6.7	0. 9. 7		+ 0. 45	
	10 Ceti. . .	6	0. 17. 57		- 0. 59	
	Moon I. . .	(7)	0. 33. . .	2, 27	+ 0. 17	
	26 Ceti. . .	6.7	0. 55. 7		+ 0. 28	
20	γ Piscium . .	6	1. 9. 5		+ 2. 43	
	95 Piscium . .	7	1. 18. 54		4. 29	
	Moon I. . .	(8)	1. 28. . .	2, 31	4. 55	
	ξ Piscium . .	5.6	1. 44. 49		2. 21	
21	ξ^1 Ceti . . .	5	2. 4. 3		+ 8. 3	
	Moon I. . .	(9)	2. 24. . .	2, 38	9. 19	
	μ Ceti . . .	4	2. 35. 48		9. 24	
	(215) Arietis	6.7	2. 47. 12		7. 42	
22	(4) Ceti. . .	6.7	3. 2. 6		+12. 24	
	Moon I. . .	(10)	3. 22. . .	2, 46	13. 12	
	ϵ Tauri. . .	6	3. 39. 0		10. 37	
	λ Tauri . .	4	3. 51. 19		12. 0	
23	(249) Tauri	6	3. 58. 18		+16. 53	
	48 Tauri. . .	6	4. 6. 11		14. 58	
	γ Tauri . .	3.4	4. 10. 11		15. 13	
	Moon I. . .	(11)	4. 22. . .	2, 54	16. 17	
24	111 Tauri. .	6	5. 14. 33		+17. 13	
	Moon I. . .	(12)	5. 24. . .	2, 60	18. 16	
	N Tauri. . .	6	5. 37. 35		17. 40	
	χ^4 Orionis	5.6	5. 53. 27		19. 41	
25	Moon I. . .	(13)	6. 27. . .	2, 60	+19. 2	
	G Geminor.	6	6. 40. 5		16. 23	
	(281) Gemin.	7	6. 47. 52		18. 7	
	ξ Geminor.	4	6. 54. 5		20. 49	
26	Moon I. . .	(14)	7. 29. . .	2, 56	+18. 28	
	g Geminor.	7	7. 36. 20		18. 55	
	(224) Gemin.	7	7. 42. 6		19. 45	
	3 Cancri. . .	6	7. 51. 5		17. 46	
27	Moon I. . .	(15)	8. 30. . .	2, 48	+16. 39	
	54 Cancri. .	6.7	8. 41. 36		15. 58	
	α^2 Cancri. .	6	8. 48. 8		16. 13	
	π^2 Cancri. .	6	9. 5. 54		15. 38	
28	35 Leonis. .	7	9. 8. 40		+12. 12	
	Moon II. . .	(16)	9. 30. . .	2, 35	13. 50	
	18 Leonis. .	6	9. 37. 16		12. 35	
	ν Leonis. . .	5.6	9. 49. 7		13. 15	
4	Moon II. . .	(23)	15. 18. . .	2, 02	-12. 49	
	γ^1 Libræ . .	4	15. 24. 57		9. 29	
	β^1 Scorpii. .	2	15. 55. 37		19. 20	
5	β^1 Scorpii. .	2	15. 55. 37		-19. 20	
	Moon II. . .	(24)	16. 7. . .	2, 08	15. 29	
	α Scorpii. .	1	16. 19. 4		26. 3	
6	β^1 Scorpii. .	2	15. 55. 37		-19. 20	
	α Scorpii. .	1	16. 19. 4		26. 3	
	Moon II. . .	(25)	16. 58. . .	2, 15	17. 29	
7	β^1 Scorpii. .	2	15. 55. 37		-19. 20	
	η Ophiuchi	2.3	17. 0. 42		15. 30	
	Moon II. . .	(26)	17. 50. . .	2, 21	18. 42	
18	Moon I. . .	(7)	3. 4. . .	2, 42	+12. 3	
	γ^1 Tauri. . .	5.6	3. 21. 33		12. 21	
	ϵ Tauri . .	6	3. 39. 0		10. 37	
	λ Tauri . .	4	3. 51. 19		12. 0	
19	Moon I. . .	(8)	4. 3. . .	2, 48	+15. 22	
	λ^3 Tauri. . .	7	4. 12. 32		13. 40	
	π Tauri . .	5	4. 17. 4		14. 20	
	ρ Tauri . .	5	4. 24. 16		14. 29	
20	Moon I. . .	(9)	5. 3. . .	2, 54	+17. 42	
	111 Tauri. .	6	5. 14. 33		17. 13	
	117 Tauri. .	6	5. 18. 13		17. 5	
	120 Tauri. .	6	5. 23. 37		18. 25	
21	Moon I. . .	(10)	6. 5. . .	2, 56	+18. 52	
	21 Geminor.	7	6. 22. 27		17. 54	
	u Geminor.	5.6	6. 32. 34		17. 48	
	(281) Gemin.	7	6. 47. 52		18. 7	
22	Moon I. . .	(11)	7. 6. . .	2, 52	+18. 46	
	f Geminor.	6	7. 29. 43		18. 3	
	g Geminor.	6	7. 36. 20		18. 55	
	3 Cancri . .	6	7. 51. 5		17. 46	
23	r Cancri. . .	6	7. 51. 51		+16. 55	
	Moon I. . .	(12)	8. 6. . .	2, 46	17. 28	
	d^2 Cancri. .	6	8. 16. 15		17. 36	
	θ Cancri . .	5.6	8. 21. 56		18. 40	
24	s Cancri . .	6	7. 59. 15		+14. 8	
	29 Cancri. .	6	8. 19. 11		14. 46	
	o^1 Cancri. .	6	8. 47. 48		15. 58	
	Moon I. . .	(13)	9. 4. . .	2, 36	15. 8	

STARS TO BE OBSERVED WITH THE MOON.

1831.	Names.	Mag.	R.A.			Decl.	1831.	Names.	Mag.	R.A.			Decl.	1831.
			H. M. S.	°	'					H. M. S.	°	'		
Feb. 25	ξ Leonis ..	5	9.22.50			+12. 3	28	(143) Virginis	6.7	12.30. 2			-	
	ο Leonis ..	4	9.32. 7			10.39		38 Virginis	6	12.44.32				
	19 Leonis..	7	9.38.20			12.21	Mar.	κ ¹ Virginis.	6	12.50.57				
	Moon I. ..	(14)	9.59. ..	2, 25		11.57		Moon II. ...	(16)	13. 3. ..	2, 00			
26	α Leonis ..	6	10.14.10			+ 7.24	29	1 ^a Virginis	6	13.23.11			-	
	48 Leonis..	5.6	10.25.58			7.49		m Virginis	5.6	13.32.45				
	ο ¹ Leonis..	6	10.37.17			7.16		Moon II. ...	(17)	13.51. ..	2, 00			
	Moon II. ...	(15)	10.54. ..	2, 17		8.11		94 Virginis	6	13.57.21				
27	γ Leonis ..	5.6	11. 8.35			+ 2.56	Apr. 5	Moon II. ...	(24)	19.45. ..	2, 25	-1		
	τ Leonis ..	4	11.19.14			3.47		α ² Capricor.	3	20. 8.40			1	
	H Leonis ..	6	11.25.43			4. 0		δ Capricor.	3.4	21.37.42			1	
	Moon II. ...	(16)	11.45. ..	2, 08		4. 5	6	α ² Capricor.	3	20. 8.40		-1		
Mar. 6	Moon I. ...	(23)	17.27. ..	2, 17		-18.17		α ² Capricor.	(25)	20.39. ..	2, 27	1		
	μ ¹ Sagitt. ...	3.4	18. 3.39			21. 6		δ Capricor.	3.4	21.37.42		1		
	σ Sagitt. ...	3	18.44.47			26.30	7	α ² Capricor.	3	20. 8.40		-1		
	μ ¹ Sagitt. ...	3.4	18. 3.39			-21. 6		Moon II. ...	(26)	21.34. ..	2, 29	1		
	Moon II. ...	(24)	18.20. ..	2, 23		18.58		δ Capricor.	3.4	21.37.42		1		
	σ Sagitt. ...	3	18.44.47			26.30	20	Moon I. ...	(9)	9.24. ..	2, 27	+1		
8	μ ¹ Sagitt. ...	3.4	18. 3.39			-21. 6		ψ Leonis ..	6	9.34.31		1		
	σ Sagitt. ...	3	18.44.47			26.30		ν Leonis. .	5.6	9.49. 7		1		
	Moon II. ...	(25)	19.14. ..	2, 27		18.43		(237) Leonis	7	9.55. 5		1		
9	μ ¹ Sagitt. ...	3.4	18. 3.39			-21. 6	21	Α Leonis..	5	9.58.56		+1		
	σ Sagitt. ...	3	18.44.47			26.30		Moon I. ...	(10)	10.17. ..	2, 17	1		
	Moon II. ...	(26)	20. 9. ..	2, 29		17.27		ρ Leonis. .	4	10.23.54		1		
20	Moon I. ...	(8)	5.46. ..	2, 54		-18.43		ι Leonis ..	6	10.40.22		1		
	χ ⁴ Orionis.	5.6	5.53.27			19.41	22	35 Sextant.	7	10.34.34		+		
	E ² Orionis	5.6	6. 4.54			19.12		ο ² Sextant.	7	10.38.31				
	21 Geminor.	7	6.22.27			17.54		c Leonis ..	5.6	10.51.59				
21	Moon I. ...	(9)	6.47. ..	2, 52		+18.59		Moon I. ...	(11)	11. 8. ..	2, 08			
	λ Geminor.	4.5	7. 8.23			16.50	23	τ Leonis ..	4	11.19.14		+		
	f Geminor.	6	7.29.43			18. 3		H Leonis..	6	11.25.43				
	g Geminor.	6	7.36.20			18.55		β Virginis..	3.4	11.41.53				
22	λ Geminor.	4.5	7. 8.23			+16.50		Moon I. ...	(12)	11.57. ..	2, 02			
	f Geminor.	6	7.29.43			18. 3	24	η Virginis..	3.4	12.11.16		+		
	g Geminor.	6	7.36.20			18.55		(91) Virginis	6.7	12.19.11		-		
	Moon I. ...	(10)	7.47. ..	2, 44		18. 4		γ ¹ Virginis.	4	12.33. 6				
23	Moon I. ...	(11)	8.44. ..	2, 35		+16. 3		Moon I. ...	(13)	12.45. ..	1, 98			
	π ² Cancr.	6	9. 5.53			15.38	25	θ Virginis..	4.5	13. 1.13		-		
	(74) Leonis	7	9.16.10			17.19		66 Virginis	6	13.15.46				
	7 Leonis ..	6.7	9.26.38			15. 8		1 ^a Virginis	6	13.23.11				
24	Moon I. ...	(12)	9.40. ..	2, 27		+13. 9		Moon I. ...	(14)	13.32. ..	1, 96			
	ν Leonis. .	5.6	9.49. 7			13.15	26	(287) Virginis	7	13.55.25		-		
	(237) Leonis	7	9.55. 5			12.27		γ Virginis..	6.7	14. 0. 1				
	α Leonis. .	1	9.59.22			12.47		κ Virginis..	4	14. 3.54				
25	π Leonis ..	4.5	9.51.17			+ 8.51		Moon { I.	(15)	14.19.26	2, 00			
	Α Leonis ..	5	9.58.56			10.49		II.		14.21.30				
	b ¹ Leonis..	6	10.16.20			9.39	27	λ Libræ ..	4	14. 9.59		-1		
	Moon I. ...	(13)	10.33. ..	2, 15		9.37		(127) Libræ	6.7	14.28. 2		1		
26	56 Leonis..	7	10.47.15			+ 7. 5		μ Libræ ..	5.6	14.40. 4		1		
	c Leonis ..	5.6	10.51.59			7. 0		Moon II. ...	(16)	15.10. ..	2, 04	1		
	σ Leonis. .	4	11.12.25			6.57	4	Moon II. ...	(23)	21.11. ..	2, 21	-1		
	Moon I. ...	(14)	11.23. ..	2, 08		5.42	May	β Aquari ..	3	21.22.39				
27	(50) Leonis	7	11.14.39			+ 1. 4		δ Aquari ..	3.4	21.37.42				
	(77) Leonis	7	11.19.16			- 0.46	5	β Aquari..	3	21.22.39				
	ν Leonis. .	4.5	11.28.18			+ 0. 7		δ Aquari ..	3	21.37.42				
	Moon I. ...	(15)	12.13. ..	2, 04		+ 1.31		Moon II. ...	(24)	22. 4. ..	2, 2			

STARS TO BE OBSERVED WITH THE MOON.

1831.	Names.	Mag.	R. A.			Decl.
			H. M. S.	M.	° ' "	
May	β Aquarii..	3	21.22.39		- 6.19	
	α Aquarii..	3	21.57. 6		1. 8	
	Moon II. . .	(25)	22.58. . .	2, 27	8. 5	
7	β Aquarii..	3	21.22.39		- 6.19	
	α Aquarii..	3	21.57. 6		1. 8	
	Moon II. . .	(26)	23.53. . .	2, 31	3.33	
21	(213) Virginis	7	11.52.23		- 0.49	
	γ Virginis..	6	12. 1. 1		+ 2.51	
	η Virginis..	3.4	12.11.16		+ 0.16	
22	θ Virginis..	4.5	13. 1.13		- 4.38	
	Moon I. . .	(12)	13.17. . .	1, 96	3.55	
	13 Virginis..	6	13.26.44		4.32	
23	(174) Virginis	7	13.35. 7		4.39	
	κ Virginis..	6	13.24. 4		- 9.17	
	m Virginis..	5.6	13.32.45		7.52	
24	(270) Virginis	7	13.51.11		7.20	
	Moon I. . .	(13)	14. 4. . .	1, 98	7.51	
	λ Virginis..	4	14. 9.59		-12.35	
25	(127) Libræ	6.7	14.28. 3		11.35	
	μ Libræ... 5.6	14.40. 4			13.26	
	Moon I. . .	(14)	14.52. . .	2, 00	11.25	
26	α Libræ... 6	15.13.37			-14.31	
	β Libræ... 6	15.21. 9			16. 1	
	γ Libræ... 4.5	15.26. 5			14.13	
27	Moon I. . .	(15)	15.40. . .	2, 04	14.31	
	χ Ophiuchi	5	16.17.14		-18. 4	
	Moon II. . .	(16)	16.32. . .	2, 10	16.58	
28	(251) Oph... 7	16.49.54			17.59	
	(297) Oph... 6.7	16.58.26			17.23	
	(214) Scorpii	6.7	16.43.27		-20. 7	
29	(236) Scorpii	6.7	16.47. 9		19.16	
	σ Ophiuchi	6	16.51.59		18.38	
	Moon II. . .	(17)	17.23. . .	2, 15	18.39	
30	Moon I. . .	(18)	17.38. . .	2, 17	18.58	
	ξ Sagittar.	6	18.47.17		-20.52	
	(316) Sagitt.	7	18.59.50		20. 4	
31	δ Sagittar..	5	19. 7.44		19.15	
	ζ Sagittar.	6	18.47.17		-20.52	
	(316) Sagitt.	7	18.59.50		20. 4	
32	δ Sagittar..	5	19. 7.44		19.15	
	Moon I. . .	(15)	19.23. . .	2, 23	19.14	
33	Moon II. . .	(16)	20.19. . .	2, 23	-17.53	
	ν Capricor.	5	20.30.25		18.44	
	(310) Capri.	6.7	20.39.45		18.39	
34	19 Capricor.	6	20.45.14		18.35	
	(240) Capri.	6.7	20.31. 2		-16.43	
	(386) Capri.	7	20.48.12		16.41	
35	θ Capricor.	5.6	20.56.26		17.54	
	Moon II. . .	(17)	21.13. . .	2, 23	15.33	
36	Moon I. . .	(18)	21.28. . .	2, 23	15.33	
	γ Tauri... 3.4	4.10.11			+13.2	
	α Tauri... 1	4.26.14			16.10	
37	γ Tauri... 3.4	4.10.11			+15.13	
	Moon II. . .	(25)	4.29. . .	2, 56	16.37	
	ξ Tauri... 3.4	5.27.32			21. 7	

STARS TO BE OBSERVED WITH THE MOON.

nes.	Mag.	R. A.			Decln.	1831.	Names.	Mag.	R. A.			Decln.
		H. M. S.	M.	S.					H. M. S.	M.	S.	
uri...	3.4	4.10.11			+15.13	19	Moon I. ...	(15)	22.14. ...	2,25		-11.48
ri....	1	4.26.14			16.10		σ Aquarii..	5	22.21.42			11.32
II..	(26)	5.32. ...	2,65		18.45		ι Aquarii..	7	22.34. 7			10.59
I. ...	(11)	17.18. ...	2,13		-18.26		κ Aquarii..	6	22.44.34			12.31
hiuchi	5	17.33.19			21.35	20	λ Aquarii..	4	22.43.47			- 8.29
Sagitt.	6.7	17.49.57			20.19		81 Aquarii.	6	22.52.36			7.58
yp. So.	7	18. 7.34			18.31		Δ Aquarii..	6	22.56.21			8.36
I. ...	(12)	18. 9. ...	2,17		-19.25		Moon II. ...	(16)	23. 8. ...	2,25		7.45
gittar.	6	18.20.16			18.50	21	π Piscium..	5.6	23.39.15			- 3.42
gittar.	7	18.25.25			19.24		24 Piscium.	6.7	23.44.15			4. 5
ittar..	6	18.39.38			20.30		ρ Piscium..	5	23.50. 1			4.30
Sagitt.	7	18.25.25			-19.24		Moon II. ...	(17)	0. 4. ...	2,27		3. 9
ttar..	6	18.39.38			20.30	22	(33) Piscium.	6.7	0. 9. 7			+ 0.45
gittar.	6	18.47.17			20.52		ι Piscium..	6	0.16.44			+ 1. 0
I....	(13)	19. 2. ...	2,23		19.27		(120)Piscium.	6.7	0.26.53			- 1.26
Sagitt.	7	19.26.34			-19.13		Moon II. ...	(18)	0.59. ...	2,31		+ 1.43
tt. ...	6	19.36.30			20.10	28	Moon II. ...	(24)	6.56. ...	2,58		+19.37
gittar.	5.6	19.42.22			19.28		β Geminor.	2	7.34.57			28.26
I. ...	(14)	19.56. ...	2,25		18.30		α Leonis ..	1	9.59.22			12.47
I. ...	(15)	20.50. ...	2,25		-16.35	29	Moon II. ...	(25)	7.58. ...	2,52		+18.38
icorni	5	21. 6.23			15.52		α Leonis ..	1	9.59.22			12.47
icor.	5	21.12.50			17.33		β Leonis ..	2.3	11.40.27			15.31
ricor.	4	21.30.43			17.25	30	Moon II. ...	(26)	8.57. ...	2,42		+16.27
ricor.	5	21. 6.23			-15.52		α Leonis ..	1	9.59.22			12.47
Capri.	6.7	21.25. 3			14.14		β Leonis ..	2.3	11.40.27			15.31
ricor.	6	21.32.21			14.48	13	Moon I. ...	(9)	19.11. ...	2,17		-19.37
I. ...	(16)	21.44. ...	2,23		13.45		(166) Sagitt.	7	19.25.35			21. 8
uarii.	6	22. 1.30			-11.39	Oct.	f Sagittar..	6	19.36.30			20.10
uarii.	6	22. 7.59			9.53		57 Sagittar.	5.6	19.42.22			19.28
uarii.	5	22.21.42			11.32	14	(166) Sagitt.	7	19.25.35			-21. 8
II... (17)	22.39. ...	2,23			10. 8		f Sagittar..	6	19.36.30			20.10
II... (24)	5.11. ...	2,56			+18.10		57 Sagittar.	5.6	19.42.22			19.28
inor.	3	6.27.56			16.32		Moon I. ...	(10)	20. 3. ...	2,19		18.32
inor.	3	6.33.31			25.17	15	Moon I. ...	(11)	20.56. ...	2,21		-16.30
II... (25)	6.13. ...	2,58			+19.25		31 Capricor.	6.7	21. 8.48			18.10
inor.	3	6.27.56			16.32		ι Capricor.	5	21.12.50			17.33
inor.	3	6.33.31			25.17		γ Capricor.	4	21.30.43			17.25
inor.	3	6.27.56			+16.32	16	Δ Aquarii..	6	21.14.57			-13.36
inor.	3	6.33.31			25.17		(177) Capri.	6.7	21.25. 3			14.14
II... (26)	7.15. ...	2,58			19.20		δ Capricor.	6	21.32.21			14.48
ittar.	6	18. 5. 9			-20.26		Moon I. ...	(12)	21.49. ...	2,21		13.36
ittar.	6	18.15.17			20.37	17	(142)Aquarii	7	22.25.12			-10.29
agitt.	7	18.25.25			19.24		64 Aquarii.	6.7	22.30.22			10.54
I. ... (11)	18.40. ...	2,19			19.36		Moon I. ...	(13)	22.42. ...	2,23		9.53
agitt.	7	18.59.50			-20. 4		χ Aquarii..	5	23.10.10			10.32
ttarii	5	19. 7.44			19.15	18	φ Aquarii..	5	23. 5.34			- 6.57
agitt.	6	19.20.52			21.39		96 Aquarii.	6	23.10.38			6. 3
I. ... (12)	19.33. ...	2,21			19. 5		(96) Aquarii	7	23.20.47			5.27
I. ... (13)	20.26. ...	2,23			-17.35		Moon I. ...	(14)	23.36. ...	2,25		5.30
Capri.	6.7	20.39.45			18.39	19	(227)Piscium	6.7	23.46. 8			- 0.50
ricor.	6	20.45.14			18.33		(270)Piscium	6.7	23.56.24			1.26
ricor.	6	20.51.20			18.11		10 Cen....	6	0.17.57			0.59
uarii	6	20.50.38			-13.42		Moon I. ...	(15)	0.30. ...	2,29		0.40
ricor.	5.6	20.56.26			17.54	20	73 Piscium	6.7	0.56. 7			+ 4.45
cor.	5	21. 6.23			15.52		e Piscium..	5	0.59.40			4.45
.. (14)	21.20. ...	2,25			15. 8		f Piscium..	6	1. 9. 5			2.45
							Moon I. ...	(16)	1.26. ...	2,38		4.45

STARS TO BE OBSERVED WITH THE MOON.

1831.	Names.	Mag.	R.A.			Decl.	1831.	Names.	Mag.	R.A.			Decl.
			H. M. S.	M.	° ' "					H. M. S.	M.	° ' "	
21	(144) Piscium	7	1. 31. 41			+ 7. 54	20	α Tauri ...	1	4. 26. 14			+ 16. 10
	\circ Piscium ..	5	1. 36. 29			8. 18		δ Tauri ...	5. 6	4. 41. 29			18. 33
	ξ Ceti	5	2. 4. 4			8. 3		ζ Tauri ...	6. 7	4. 47. 37			16. 53
	Moon II. ...	(17)	2. 26. ...	2, 46		9. 13		Moon II. ...	(18)	5. 2. ...	2, 75		18. 23
27	Moon II. ...	(23)	8. 40. ...	2, 46		+ 17. 26	26	Moon II. ...	(24)	11. 9. ...	2, 17		+ 8. 17
	α Leonis. ...	1	9. 59. 22			12. 47		β Virginis. ...	3. 4	11. 41. 53			2. 43
	β Leonis ...	2. 3	11. 40. 27			15. 31		η Virginis. ...	3. 4	12. 11. 16			0. 16
28	Moon II. ...	(24)	9. 37. ...	2, 33		+ 14. 32	27	β Virginis. ...	3. 4	11. 41. 53			+ 2. 43
	α Leonis. ...	1	9. 59. 22			12. 47		Moon II. ...	(25)	11. 59. ...	2, 06		3. 55
	β Leonis ...	2. 3	11. 40. 27			15. 31		η Virginis. ...	3. 4	12. 11. 16			0. 16
29	α Leonis. ...	1	9. 59. 22			+ 12. 47	28	β Virginis. ...	3. 4	11. 41. 53			+ 2. 43
	Moon II. ...	(25)	10. 32. ...	2, 23		10. 54		η Virginis. ...	3. 4	12. 11. 16			+ 0. 16
	β Leonis ...	2. 3	11. 40. 27			15. 31		Moon II. ...	(26)	12. 48. ...	2, 02		- 0. 32
30	α Leonis. ...	1	9. 59. 22			+ 12. 47	29	β Virginis. ...	3. 4	11. 41. 53			+ 2. 43
	Moon II. ...	(26)	11. 24. ...	2, 13		6. 46		η Virginis. ...	3. 4	12. 11. 16			+ 0. 16
	β Virginis. ...	3. 4	11. 41. 53			2. 43		Moon II. ...	(27)	13. 36. ...	2, 00		- 4. 54
10	(1294) Sagitt.	6	19. 18. 15			- 18. 42	9	Moon I. ...	(7)	21. 9. ...	2, 13		- 16. 26
	(176) Sagitt.	7	19. 26. 34			19. 13		γ Capricor. ...	4	21. 30. 43			17. 25
	Moon I. ...	(8)	19. 43. ...	2, 17		19. 20		δ Capricor. ...	3. 4	21. 37. 42			16. 53
	σ Capricor. ...	5. 6	20. 9. 38			19. 38		π Aquarii. ...	6	21. 53. 12			17. 46
11	Moon I. ...	(9)	20. 35. ...	2, 17		- 17. 42	10	Moon I. ...	(8)	21. 59. ...	2, 10		- 13. 28
	19 Capricor. ...	6	20. 45. 14			18. 33		D Aquarii. ...	6	22. 9. 56			14. 9
	20 Capricor. ...	6	20. 50. 0			19. 41		50 Aquarii. ...	6	22. 15. 24			14. 23
	θ Capricor. ...	5. 6	20. 56. 26			17. 54		f Aquarii. ...	6	22. 21. 13			15. 27
12	Moon I. ...	(10)	21. 27. ...	2, 15		- 15. 12	11	σ Aquarii. ...	5	22. 21. 42			- 11. 32
	α^2 Capricor. ...	6	21. 33. 51			15. 10		64 Aquarii. ...	6. 7	22. 30. 22			10. 54
	δ Capricor. ...	3. 4	21. 37. 42			16. 53		70 Aquarii. ...	6	22. 39. 37			11. 27
	π Aquarii. ...	6	21. 53. 12			17. 46		Moon I. ...	(9)	22. 50. ...	2, 13		9. 47
13	40 Aquarii. ...	7	22. 4. 24			- 12. 45	12	Moon I. ...	(10)	23. 41. ...	2, 13		- 5. 33
	Moon I. ...	(11)	22. 18. ...	2, 15		11. 54		(249) Piscium ...	7	23. 51. 0			6. 50
	70 Aquarii. ...	6	22. 39. 37			11. 27		s Piscium. ...	5	23. 56. 41			6. 39
	K Aquarii. ...	6	22. 44. 34			12. 31		(1) Ceti. ...	6. 7	0. 1. 40			6. 11
14	(200) Aquarii. ...	7	22. 34. 11			- 9. 12	13	Moon I. ...	(11)	0. 32. ...	2, 17		- 0. 55
	λ Aquarii. ...	4	22. 43. 47			8. 29		m Ceti. ...	5	0. 44. 23			2. 4
	λ^1 Aquarii. ...	6	22. 56. 21			8. 36		38 Ceti. ...	6	1. 6. 12			1. 53
	Moon I. ...	(12)	23. 10. ...	2, 19		7. 52		μ Ceti. ...	6	1. 11. 10			1. 24
15	n Piscium. ...	5. 6	23. 39. 15			- 3. 42	14	(189) Piscium ...	6	0. 39. 30			+ 4. 25
	24 Piscium. ...	6. 7	23. 44. 15			4. 5		e Piscium. ...	5	0. 59. 40			4. 45
	p Piscium. ...	5	23. 50. 1			4. 30		f Piscium. ...	6	1. 9. 5			2. 43
	Moon I. ...	(13)	0. 3. ...	2, 23		3. 19		Moon I. ...	(12)	1. 25. ...	2, 27		3. 58
16	(33) Piscium. ...	6. 7	0. 9. 7			+ 0. 45	15	(144) Piscium ...	7	1. 31. 41			+ 7. 54
	i Piscium. ...	6	0. 16. 44			1. 0		\circ Piscium. ...	5	1. 36. 29			8. 18
	Moon I. ...	(14)	0. 57. ...	2, 29		1. 37		ξ Ceti. ...	5	2. 4. 3			8. 3
	(57) Ceti. ...	7	1. 13. 55			0. 51		Moon I. ...	(13)	2. 21. ...	2, 42		8. 47
17	μ Piscium. ...	5	1. 21. 20			+ 5. 16	16	v Arietis. ...	6	2. 27. 25			+ 11. 43
	(123) Piscium ...	6. 7	1. 27. 13			6. 47		38 Arietis. ...	5. 6	2. 35. 45			11. 44
	ν Piscium. ...	5	1. 32. 39			4. 38		σ Arietis. ...	6	2. 42. 10			14. 23
	Moon I. ...	(15)	1. 53. ...	2, 42		6. 38		Moon I. ...	(14)	3. 21. ...	2, 56		13. 13
18	v Arietis. ...	6	2. 27. 25			+ 11. 43	17	(187) Tauri ...	7	3. 43. 30			+ 16. 49
	μ Ceti. ...	4	2. 35. 48			9. 24		(249) Tauri ...	6	3. 58. 19			16. 53
	Moon I. ...	(16)	2. 53. ...	2, 54		11. 22		γ Tauri. ...	3. 4	4. 10. 11			15. 13
	s Tauri. ...	6	3. 21. 11			10. 45		Moon I. ...	(15)	4. 24. ...	2, 69		16. 53
	Moon II. ...	(17)	3. 57. ...	2, 65		+ 15. 26	18	λ^2 Tauri. ...	7	4. 58. 52			+ 19. 38
	48 Tauri. ...	6	4. 6. 11			14. 58		(43) Tauri. ...	7	5. 10. 20			19. 24
	Tauri. ...	3. 4	4. 10. 11			15. 13		115 Tauri. ...	5. 6	5. 17. 19			17. 49
								Moon I. ...	(16)	5. 30. ...	2, 79		19. 38

STARS TO BE OBSERVED WITH THE MOON.

1831.	Names.	Mag.	R. A.		Declin.	1831.	Names.	Mag.	R. A.		Declin.
			H. M. S.	M.					H. M. S.	M.	
19 Dec.	χ^3 Orionis.	5.6	5. 53. 53		+ 20. 8	26 Dec.	γ^1 Virginis	4	12. 33. 6		- 0. 31
	E^3 Orionis	5.6	6. 4. 54		19. 12		δ Virginis..	3.4	12. 47. 5		+ 4. 19
	ν Geminor.	5	6. 18. 55		20. 19		Moon II. . .	(24)	13. 21. . .	2, 02	- 3. 20
	Moon II. . .	(17)	6. 40. . .	2, 81	20. 14		δ Virginis..	3.4	12. 47. 5		+ 4. 19
25	Moon II. . .	(23)	12. 32. . .	2, 06	+ 1. 8	27	α Virginis..	1	13. 16. 18		- 10. 17
	δ Virginis..	3.4	12. 47. 5		+ 4. 19		Moon II. . .	(25)	14. 9. . .	2, 00	- 7. 33
	α Virginis..	1	13. 16. 18		- 10. 17	28	δ Virginis..	3.4	12. 47. 5		+ 4. 19
							α Virginis..	1	13. 16. 18		- 10. 17
							Moon II. . .	(26)	14. 57. . .	2, 02	- 11. 23

The Right Ascensions of the Stars are set down for the beginning of the Year: the Moon's Place for the time of her Transit at Greenwich.

In the preceding list, the right ascension of the Moon's enlightened limb is given to the time of her transit at Greenwich; and the hourly right ascension offers the means of correcting the same to any other meridian, by multiplying the longitude of the proposed meridian from Greenwich, by the hourly right ascension, and subtracting the product from the given right ascension, if the longitude be East; but adding it thereto if it be West: thus, to find the right ascension of the Moon's enlightened limb at her transit at Madras, on March 23, 1831, we have—

March 23, R. A. of ζ 's I. limb at Greenwich..... 8.44
 Madras, $5^h, 21^m, 28^s$ East, or $-5^h, 36$, which multiplied by the } $-12,6$
 ζ 's H. R. A. $2^m, 35$, gives }
 R. A. of ζ 's I. limb at her transit at Madras..... 8.31,4

The declinations are marked + when they are North, and - when they are South.

CORRECTIONS

FOR

ECLIPSES OF JUPITER'S SATELLITES,

given in the Nautical Almanac for 1831,

On Account of the Errors of DELAMBRE'S Tables.

1831.	I. SATELLITE		II. SATELLITE		III. SATELLITE		IV. SATELLITE	
	at Immers.	Emers.	at Immers.	Emers.	at Immers.	Emers.	at Immers.	Emers.
	subt. 7	.....	add. 3	.....	subt. 12	add. 14	add. 42	add. 18
	..... 8	.....	..... 2	.....	..... 10	..... 11	..... 44	..... 23
April.....	..... 9	.....	..... 0	.....	..... 8	..... 9	..... 45	..... 28
May.....	..... 8	.....	subt. 1	.....	..... 6	..... 6	..... 47	..... 33
June.....	..... 7	.....	..... 3	.....	..... 3	..... 2	..... 49	..... 39
July.....	..... 4	.....	..... 4	.....	..... 0	subt. 1	..... 52	..... 44
August..	..... 1	subt. 1	..... 5	subt. 6	add. 3	..... 4	..... 53	..... 49
September	.....	add. 1	.....	..... 6	..... 6	..... 7	..... 55	..... 54
October..	.....	..... 2	.....	..... 5	..... 9	..... 9	..... 57	..... 59
November	.....	..... 2	.....	..... 3	..... 11	..... 11	..... 58	..... 64
December	.....	..... 1	.....	..... 1	..... 14	..... 14	..... 58	..... 67

Note.—These Corrections are adapted to the middle of the Month.

For the corrected Epochs, see the Additions to the Nautical Almanac for 1832.

*Corrections of the Longitudes and Right Ascensions of the Sun,
given in the Nautical Almanac for 1831.*

Month and Day, 1831.	Corr. of Long.	Corr. of A. R.	Month and Day, 1831.	Corr. of Long.	Corr. of A. R.
January 1	+ 5, 5	+ 0, 40	July 5	+ 7, 0	+ 0, 50
6	6, 2	0, 45	10	6, 0	0, 43
11	5, 8	0, 41	15	5, 0	0, 36
16	4, 8	0, 33	20	5, 0	0, 35
21	4, 2	0, 29	25	6, 0	0, 41
26	4, 8	0, 32	30	6, 8	0, 46
31	5, 9	0, 40			
February... 5	6, 5	0, 43	August..... 4	6, 7	0, 45
10	6, 0	0, 39	9	5, 6	0, 37
15	5, 0	0, 32	14	4, 7	0, 31
20	4, 5	0, 39	19	4, 8	0, 31
25	5, 2	0, 33	24	5, 8	0, 37
			29	6, 7	0, 42
March 2	6, 3	0, 39	September.. 3	6, 4	0, 40
7	6, 9	0, 43	8	5, 4	0, 33
12	6, 3	0, 39	13	4, 6	0, 28
17	5, 3	0, 33	18	4, 9	0, 30
22	5, 0	0, 30	23	5, 9	0, 36
27	5, 7	0, 35	28	6, 6	0, 41
April 1	6, 8	0, 42	October.... 3	6, 3	0, 39
6	7, 2	0, 45	8	5, 2	0, 32
11	6, 6	0, 41	13	4, 5	0, 28
16	5, 5	0, 35	18	4, 8	0, 30
21	5, 2	0, 33	23	5, 9	0, 37
26	6, 0	0, 39	28	6, 5	0, 42
May. 1	7, 0	0, 46	November.. 2	6, 0	0, 39
6	7, 3	0, 49	7	4, 9	0, 33
11	6, 5	0, 44	12	4, 2	0, 28
16	5, 5	0, 38	17	4, 6	0, 32
21	5, 3	0, 37	22	5, 7	0, 39
26	6, 1	0, 43	27	6, 2	0, 43
31	7, 1	0, 50			
June..... 5	7, 3	0, 52	December.. 2	5, 6	0, 40
10	6, 4	0, 46	7	4, 5	0, 33
15	5, 3	0, 39	12	3, 7	0, 27
20	5, 2	0, 38	17	4, 2	0, 30
25	6, 0	0, 44	22	5, 1	0, 37
30	6, 9	0, 50	27	5, 6	0, 40
			31	5, 1	0, 37

These Corrections have been calculated, independently, for every one of the days set down in the Table. The Corrections in Longitude are accurate: those in Right Ascension ought to include a term depending on the Sun's Latitude, which is neglected, because it is quite insensible. The data, which are the foundation of the calculation, are nearly the same as those given in my paper in the Phil. Trans. for 1828.

It is supposed, that the Right Ascensions of the Stars, with which the Sun is compared, are formed by adding 0^h.2 to the Right Ascensions for 1821, as given MASKELYNE'S Catalogue, and bringing them up to 1831, by the annual Variation. responding to this increased Right Ascension, at the mean interval. G. B. A

A TABLE

*For Reducing Sexagesimal Time to the Decimal Fraction of a Day,
and the Reverse.*

HOURS.		MINUTES.		SECONDS.		TENTHS.	
Hours.	Fraction of a Day.	Minutes.	Fraction of a Day.	Minutes.	Fraction of a Day.	Seconds.	Fraction of a Day.
0	,0000000	0	,0000000	30	,0208333	0	,0000000
1	,0416667	1	,0006944	31	,0215278	1	,0000116
2	,0833333	2	,0013889	32	,0222222	2	,0000231
3	,1250000	3	,0020833	33	,0229167	3	,0000347
4	,1666667	4	,0027778	34	,0236111	4	,0000463
5	,2083333						
6	,2500000	5	,0034722	35	,0243056	5	,0000579
7	,2916667	6	,0041667	36	,0250000	6	,0000694
8	,3333333	7	,0048611	37	,0256944	7	,0000810
9	,3750000	8	,0055556	38	,0263889	8	,0000926
10	,4166667	9	,0062500	39	,0270833	9	,0001042
11	,4583333						
12	,5000000	10	,0069444	40	,0277778	10	,0001157
13	,5416667	11	,0076389	41	,0284722	11	,0001273
14	,5833333	12	,0083333	42	,0291667	12	,0001389
15	,6250000	13	,0090278	43	,0298611	13	,0001505
16	,6666667	14	,0097222	44	,0305556	14	,0001620
17	,7083333						
18	,7500000	15	,0104167	45	,0312500	15	,0001736
19	,7916667	16	,0111111	46	,0319444	16	,0001852
20	,8333333	17	,0118056	47	,0326389	17	,0001968
21	,8750000	18	,0125000	48	,0333333	18	,0002083
22	,9166667	19	,0131944	49	,0340278	19	,0002199
23	,9583333						
24		20	,0138889	50	,0347222	20	,0002315
25		21	,0145833	51	,0354167	21	,0002431
26		22	,0152778	52	,0361111	22	,0002546
27		23	,0159722	53	,0368056	23	,0002662
28		24	,0166667	54	,0375000	24	,0002778
29							
30		25	,0173611	55	,0381944	25	,0002894
31		26	,0180556	56	,0388889	26	,0003009
32		27	,0187500	57	,0395833	27	,0003125
33		28	,0194444	58	,0402778	28	,0003241
34		29	,0201389	59	,0409722	29	,0003356
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EXAMPLES.

1. *Direct Operation.*

Given	22 ^h	d,	9166667
	57 ^m	,	0395833
	22 ^s	,	0002546
		, 1.....	,	0000012
		, 02.....	,	0000002
	22 ^h .57 ^m .22 ^s .12.....	=.....		9565060

2. Reverse Operation.

Given.....^d 956506
Next less....., 9166667 = 22^h
Remain....., 0398393
Next less....., 0395833 = ... 57^m
Remain....., 0002560
Next less....., 0002546 = 22^s
Remain....., 0000014
Next less....., 0000012 = 1
Remain....., 0000002 = 02
Equivalent time..... 22^h. 57^m. 22^s. 12

OCCULTATIONS

OF
PLANETS AND FIXED STARS BY THE MOON,

In the Year 1831,

Computed for Greenwich, by T. HENDERSON, Esq.

DATE.	STAR.	Magnitude.	Astron. Society's Catalogue No.	Immersion.				Emersion.			
				Sidereal Time.	Mean Time.	Angle from N. Pole.	Ver- tex.	Sidereal Time.	Mean Time.	Angle from N. Pole.	Ver- tex.
				h m	h m	°	°	h m	h m	°	°
Jan. 6	94 Virginis	6	1605	10.52	15.48	49	20	12. 5	17. 1	261	2
17	♈ Aquarii	6	2754	4. 2	8.16	75	112	Under	horizon.	..	..
20	♊ Piscium	5	184	3.23	7.25	107	129	4.32	8.34	297	3
21	μ Ceti	4	293	7.58	11.56	64	103	8.42	12.39	324	2
22	f Tauri	5.6	379	2.11	6. 6	72	55	3.10	7. 4	326	3
23	θ Tauri	5	510	1.47	5.38	124	91	2.55	6.45	268	2
	θ Tauri	5.6	511	1.46	5.36	104	71	2.56	6.47	288	2
	(99) Tauri	5.6	516	3. 3	6.53	150	130	3.55	7.45	240	2
	85 Tauri	6	520	3.36	7.26	53	41	* 4.22	8.12	335	3
	Aldebaran	1	528	6. 9	9.59	165	189	6.39	10.29	215	2
24	N Tauri	6	706	11.18	15. 3	35	75	11.49	15.34	325	2
26	f Geminorum	6	940	6.37	10.15	109	95	7.44	11.22	237	2
28	18 Leonis	6	1177	13.38	17. 7	80	118	14.38	18. 7	242	2
29	49 Leonis	6	1259	11.11	14.37	80	91	12.23	15.49	234	2
Feb. 1	♈ Virginis	6	1500	13. 2	16.16	81	83	14.19	17.32	227	2
19	48 Tauri	6	468	4.41	6.46	108	119	5.54	7.58	278	3
	γ Tauri	3.4	478	6.55	8.58	114	147	8. 1	10. 5	266	3
	71 Tauri	5.6	503	9.59	12. 2	69	109	10.48	12.51	303	3
	θ Tauri	5	510	11. 1	13. 4	136	174	11.39	13.42	236	2
	θ Tauri	5.6	511	10.57	13. 0	114	152	11.45	13.48	258	2
20	111 Tauri	6	649	9.52	11.51	52	93	10.37	12.37	312	3
Mar. 1	65 Virginis	6	1531	8.27	9.51	116	79	9.12	10.36	200	1
	66 Virginis	6	1532	9. 5	10.29	85	50	10.12	11.36	227	1
	♈ Virginis	6	1545	14.36	15.59	35	49	15.42	17. 5	277	3
5	m Scorpii	5	1907	13.41	14.49	72	46	15. 1	16. 8	256	2
24	18 Leonis	6	1177	7.37	7.31	345	319	D almost touching Star.— Occulted to places further North.			
28	♈ Virginis	6	1500	8.10	7.48	40	3	9. 9	8.47	274	2
31	γ Libræ	4.5	1764	14.50	14.15	102	96	16. 2	15.27	222	2
Apr. 15	Aldebaran	1	528	6.23	4.50	121	148	7.27	5.54	257	2
20	18 Leonis	6	1177	15.54	14. 1	56	95	16.46	14.52	270	3
21	49 Leonis	6	1259	14.36	12.38	83	121	15.56	13.38	237	2
May 21	γ Virginis†	4	{ 1465 1466 }	13.27	9.32	122	132	14. 9	10.13	186	2
22	♈ Virginis	6	1545	16.31	12.31	37	66	17.30	13.31	281	3
June 1	IV. Satellite Jupiter .....	...	...	17.28	12.49	75	40	18.31	13.52	311	2
	II. Satellite .....	...	...	17.44	13. 5	79	46	18.50	14.11	307	2
	Jupiter .....	...	...	17.46	13. 6	80	47	18.52	14.12	306	2
	I. Satellite Jupiter .....	...	...	17.49	13.10	81	49	18.55	14.16	305	2
	III. Satellite .....	...	...	17.53	13.14	82	50	19. 0	14.21	304	2
9	Aldebaran	1	528	6.43	1.34	96	126	7.49	2.40	...	...

* Star on Meridian at Emersion.

† Double Star.

OCCULTATIONS OF PLANETS AND FIXED STARS BY THE MOON, IN THE YEAR 1831.

DATE.	STAR.	Magnitude.	Astron. Society's Catalogue No.	Immersion.				Emersion.			
				Sidereal		Mean		Angle from		Sidereal	
				Time.	Time.	N. Pole.	Ver- tex.	N. Pole.	Ver- tex.	Time.	Time.
				h m	h m	°	°	h m	h m	°	°
June 19	94 Virginis	6	1605	18. 25	12. 35	38	73	19. 18	13. 28	288	326
21	γ Libræ	4.5	1764	15. 10	9. 13	100	97	16. 23	10. 25	222	231
30	χ Aquarii	5.6	2776	19. 38	13. 4	111	79	20. 50	14. 17	291	268
July 20	α Ophiuchi	6	1944	19. 27	11. 35	55	79	20. 32	12. 40	295	326
24	π Capricorni	5	2403	19. 17	11. 9	110	100	20. 37	12. 29	272	275
31	ξ Ceti	5	255	20. 8	11. 33	127	88	21. 2	12. 26	273	234
Aug. 1	f Tauri	5.6	379	23. 37	14. 57	133	96	0. 39	15. 59	269	238
2	71 Tauri	5.6	503	22. 24	13. 40	94	54	23. 18	14. 34	298	258
	θ Tauri	5	510	23. 29	14. 45	136	96	0. 21	15. 37	256	218
	θ Tauri	5.6	511	23. 25	14. 41	115	75	0. 25	15. 41	277	239
	80 Tauri	6	515	0. 26	15. 42	17	339	D almost touching Star.— Occulted to places further North.			
	81 Tauri	5.6	517	0. 31	15. 48	35	357	0. 50	16. 6	359	322
	(99) Tauri	5.6	516	0. 37	15. 53	164	126	1. 11	16. 27	230	192
	Aldebaran	1	528	3. 15	18. 30	151	133	4. 6	19. 22	241	236
3	111 Tauri	6	640	22. 0	13. 12	25	349	22. 12	13. 24	357	320
	115 Tauri	5.6	651	22. 59	14. 11	147	108	23. 37	14. 49	237	197
8	Mercury . . . . .	.....	.....	4. 38	19. 30	121	82	5. 26	20. 17	215	175
11	γ Virginis*	4	{ 1465 } { 1466 }	18. 3	8. 45	42	81	Under	horizon.	..	...
29	48 Tauri	6	468	2. 5	15. 34	107	78	3. 17	16. 47	289	277
Sept. 11	γ Libræ	4.5	1764	20. 7	8. 46	84	120	Under	horizon.	..	...
19	58 Aquarii	6	2690	2. 27	14. 34	141	174	3. 22	15. 29	263	301
20	χ Aquarii	5.6	2776	22. 3	10. 7	122	110	23. 17	11. 21	288	290
22	33 Ceti	6	125	3. 5	15. 0	130	152	4. 10	16. 5	278	309
30	α Cancri	6	1094	4. 7	15. 30	69	29	5. 11	16. 34	275	238
Oct. 21	ξ Ceti	5	255	22. 33	8. 35	80	44	23. 27	9. 28	328	297
	μ Ceti	4	293	7. 30	17. 30	89	128	8. 26	18. 26	303	343
22	f Tauri	5.6	379	0. 49	10. 47	68	37	1. 39	11. 36	334	311
23	γ Tauri	3.4	478	Under	horiz.	..	..	20. 59	6. 54	274	237
	θ Tauri	5	510	23. 35	9. 28	73	33	0. 24	10. 18	321	283
	θ Tauri	5.6	511	23. 46	9. 40	42	2	0. 12	10. 5	352	313
	75 Tauri	6	508	23. 51	9. 45	165	124	0. 24	10. 17	229	190
	(99) Tauri	5.6	516	0. 20	10. 13	93	54	1. 21	11. 15	301	267
	Aldebaran	1	528	3. 5	12. 59	84	63	4. 12	14. 5	308	305
24	115 Tauri	5.6	651	22. 33	8. 23	76	38	23. 19	9. 9	308	268
	119 Tauri	5.6	663	1. 8	10. 57	192	152	D touching Star. Occulted to places further South.			
	120 Tauri	6	667	1. 15	11. 5	139	99	2. 6	11. 55	245	207
26	g Geminorum	6	951	5. 57	15. 38	100	74	7. 10	16. 51	250	243
30	σ Leonis	4	1334	4. 52	14. 18	38	359	5. 40	15. 6	288	249
Nov. 8	μ Sagittarii	6	2098	20. 40	5. 31	66	89	21. 49	6. 41	296	328
	16 Sagittarii	6	2099	21. 5	5. 57	164	190	21. 28	6. 19	200	229
12	45 Capricorni	6	2576	1. 20	9. 54	95	127	Under	horizon.	..	...
16	33 Ceti	6	125	3. 8	11. 27	160	184	3. 56	12. 15	250	279
21	E Orionis	5.6	777	4. 18	12. 17	62	34	5. 17	13. 16	310	297
23	ξ Cancri	6	998	0. 58	8. 50	58	21	1. 43	9. 35	298	258
24	π Cancri	6	1122	3. 8	10. 56	9	329	3. 23	11. 11	337	297
25	Regulus	1	1209	Under	horiz.	..	..	+2. 54	10. 37	254	217

uble Star.

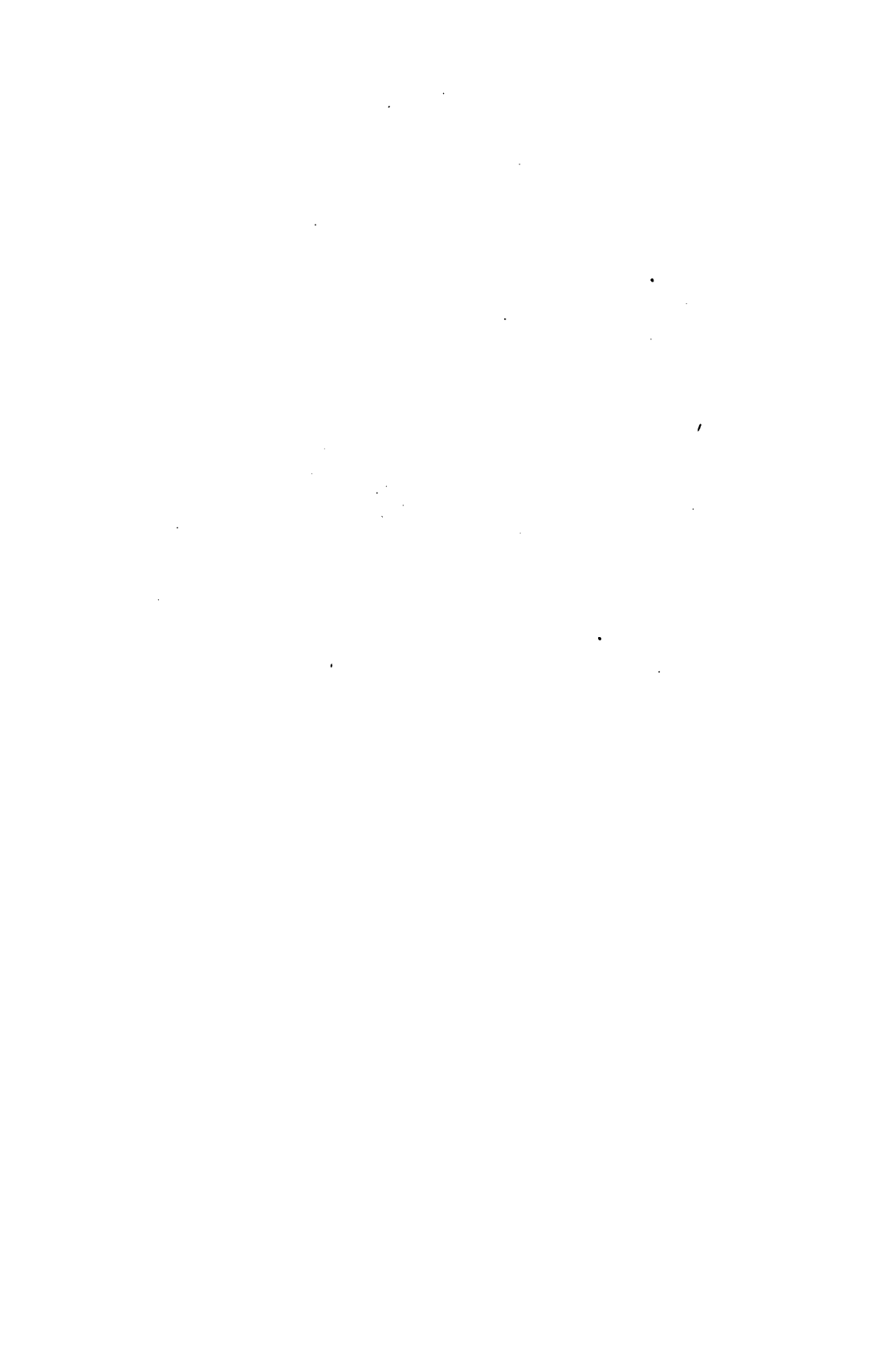
† At Emersion, D and Star rising above horizon.

OCCULTATIONS **OF PLANETS AND FIXED STARS BY THE MOON, IN THE YEAR 18**

DATE.	STAR.	Magnitude.	Astron. Society's Catalogue No.	Immersion.				Emersion.	
				Sidereal Time.	Mean Time.	Angle from		Sidereal Time.	Mean Time.
						N. Pole.	Ver- tex.		
				h m	h m	°	°	h m	h m
Nov. 26	Saturn .....	...	.....	8.55	16.33	40	15	10. 3	17.41
29	♄ Virginis	6	1551	Under	horiz.	..	..	8. 21	15.48
Dec. 8	♄ Capricorni * ..	6	2408	21.30	4.23	174	185	21.57	4.51
10	♄ Aquarii	6	2653	2. 6	8.51	95	128	Under	horizon.
15	♄ Ceti	5	255	23.58	6.23	103	76	1. 6	7.31
	♄ Ceti	4	293	8.56	15.20	125	164	Under	horizon.
16	♄ Tauri	5.6	379	2.50	9.11	53	46	3.28	9.49
17	♄ Tauri	3.4	478	21.19	3.37	99	61	22.10	4.27
	♄ Tauri	6	508	0.59	7.16	128	90	1.59	8.17
	♄ Tauri	5	510	1.18	7.35	18	343	D almost touching Occulted to places North.	
	(99) Tauri	5.6	516	1.55	8.12	61	29	2.42	8.59
	Aldebaran	1	528	4.46	11. 2	48	53	5.25	11.42
18	119 Tauri	5.6	663	0.58	7.11	120	79	1.55	8. 9
	120 Tauri	6	667	1.27	7.40	96	56	2.29	8.42
20	♄ Geminorum	6	951	2.49	8.55	35	354	3.23	9.28
22	Regulus	1	1209	13.44	19.39	68	105	14.45	20.40

• Double Star.

The *angles* are reckoned from the northernmost point, and also from the vertex, of Moon's limb, towards the right-hand, round the circumference of the disc, as exhibit an inverting telescope.



Ephemeris of Pallas for the Opposition.

At Greenwich Mean Midnight.							
1831.	PALLAS.						
	Right Ascension in Time.	Declination.	Horiz. Parallax.	Logarithmic Distance from the			
				Earth.	Sun.		
	h m s	° ' "	"			h	
uly 7	19. 47. 7, 12	+19. 46. 38, 5	3, 30	0. 41870	0. 53543	12.	
8	46. 19, 97	19. 44. 14, 2	3, 31	0. 41812	0. 53548	12.	
9	45. 32, 49	19. 41. 34, 1	3, 31	0. 41758	0. 53553	12.	
10	19. 44. 44, 72	+19. 38. 38, 0	3, 32	0. 41707	0. 53557	12.	
11	43. 56, 71	19. 35. 26, 0	3, 32	0. 41660	0. 53562	12.	
12	43. 8, 49	19. 31. 58, 1	3, 32	0. 41616	0. 53567	12.	
13	42. 20, 10	19. 28. 14, 2	3, 33	0. 41577	0. 53571	12.	
14	41. 31, 60	19. 24. 14, 5	3, 33	0. 41541	0. 53576	12.	
15	40. 43, 02	19. 19. 59, 0	3, 33	0. 41508	0. 53580	12.	
16	39. 54, 40	19. 15. 28, 0	3, 33	0. 41479	0. 53584	12.	
17	19. 39. 5, 79	+19. 10. 41, 3	3, 33	0. 41454	0. 53589	11.	
18	38. 17, 23	19. 5. 39, 1	3, 34	0. 41433	0. 53593	11.	
19	37. 28, 77	19. 0. 21, 7	3, 34	0. 41415	0. 53597	11.	
20	36. 40, 43	18. 54. 49, 0	3, 34	0. 41402	0. 53601	11.	
21	35. 52, 28	18. 49. 1, 2	3, 34	0. 41392	0. 53605	11.	
8 22	35. 4, 33	18. 42. 58, 7	3, 34	0. 41386	0. 53608	11.	
23	34. 16, 61	18. 36. 41, 5	3, 34	0. 41384	0. 53612	11.	
24	19. 33. 29, 19	+18. 30. 9, 9	3, 34	0. 41386	0. 53616	11.	
25	32. 42, 09	18. 23. 23, 9	3, 34	0. 41391	0. 53619	11.	
26	31. 55, 36	18. 16. 23, 8	3, 34	0. 41402	0. 53622	11.	
27	31. 9, 03	18. 9. 9, 9	3, 34	0. 41415	0. 53626	11.	
28	30. 23, 14	18. 1. 42, 3	3, 34	0. 41433	0. 53629	11.	
29	29. 37, 72	17. 54. 1, 2	3, 33	0. 41454	0. 53633	11.	
30	28. 52, 82	17. 46. 7, 0	3, 33	0. 41479	0. 53636	10.	
31	19. 28. 8, 46	+17. 37. 59, 9	3, 33	0. 41508	0. 53639	10.	
Aug. 1	27. 24, 69	17. 29. 40, 2	3, 33	0. 41541	0. 53642	10.	
2	26. 41, 54	17. 21. 8, 1	3, 32	0. 41579	0. 53645	10.	
3	25. 59, 05	17. 12. 24, 0	3, 32	0. 41620	0. 53648	10.	
4	25. 17, 26	17. 3. 28, 2	3, 32	0. 41664	0. 53651	10.	
5	24. 36, 20	16. 54. 20, 7	3, 31	0. 41712	0. 53654	10.	
6	23. 55, 89	16. 45. 2, 5	3, 31	0. 41764	0. 53656	10.	
7	19. 23. 16, 38	+16. 35. 33, 3	3, 31	0. 41820	0. 53659	10.	
8	23. 37, 69	16. 25. 53, 6	3, 30	0. 41880	0. 53661	10.	

These numbers have been calculated with the assistance of page 117 of the Jahrbuch

Ephemeris of Ceres for the Opposition.

At Greenwich Mean Midnight.							Mean Solar Time of Passage Meridian.
31.	CERES.						
	Right Ascension in Time.	Declination.	Horiz. Parallax.	Logarithmic Distance from the		h m	
				Earth.	Sun.		
	h m s	° ' "	"				
y 19	21. 25. 43, 62	—27. 32. 28, 3	4, 32	0. 30188	0. 47288	12. 37, 5	
20	24. 59, 74	27. 39. 22, 4	4, 33	0. 30107	0. 47292	12. 32, 9	
21	24. 14, 86	27. 46. 14, 4	4, 34	0. 30031	0. 47296	12. 28, 2	
22	23. 29, 03	27. 53. 4, 1	4, 34	0. 29961	0. 47299	12. 23, 5	
23	22. 42, 31	27. 59. 51, 1	4, 35	0. 29898	0. 47303	12. 18, 8	
24	21. 21. 54, 74	—28. 6. 34, 8	4, 36	0. 29839	0. 47307	12. 14, 0	
25	21. 6, 35	28. 13. 15, 1	4, 36	0. 29786	0. 47310	12. 9, 3	
26	20. 17, 19	28. 19. 51, 4	4, 37	0. 29739	0. 47314	12. 4, 6	
27	19. 27, 32	28. 26. 23, 6	4, 37	0. 29699	0. 47317	11. 59, 8	
28	18. 36, 77	28. 32. 51, 0	4, 37	0. 29664	0. 47320	11. 55, 0	
29	17. 45, 60	28. 39. 13, 4	4, 38	0. 29635	0. 47324	11. 50, 3	
30	16. 53, 86	28. 45. 30, 4	4, 38	0. 29612	0. 47327	11. 45, 5	
31	21. 16. 1, 60	—28. 51. 41, 7	4, 38	0. 29594	0. 47330	11. 40, 7	
g. 1	15. 8, 88	28. 57. 46, 8	4, 38	0. 29584	0. 47333	11. 35, 9	
2	14. 15, 75	29. 3. 45, 5	4, 38	0. 29578	0. 47337	11. 31, 1	
3	13. 22, 27	29. 9. 37, 4	4, 38	0. 29579	0. 47340	11. 26, 3	
8 4	12. 28, 51	29. 15. 22, 2	4, 38	0. 29585	0. 47343	11. 21, 4	
5	11. 34, 52	29. 20. 59, 4	4, 38	0. 29599	0. 47346	11. 16, 6	
6	10. 40, 38	29. 26. 28, 9	4, 38	0. 29618	0. 47349	11. 11, 8	
7	21. 9. 46, 13	—29. 31. 50, 2	4, 38	0. 29643	0. 47352	11. 7, 0	
8	8. 51, 84	29. 37. 3, 3	4, 37	0. 29674	0. 47355	11. 2, 1	
9	7. 57, 57	29. 42. 7, 8	4, 37	0. 29712	0. 47358	10. 57, 3	
10	7. 3, 40	29. 47. 3, 4	4, 37	0. 29755	0. 47361	10. 52, 4	
11	6. 9, 38	29. 51. 49, 9	4, 36	0. 29804	0. 47363	10. 47, 6	
12	5. 15, 58	29. 56. 27, 2	4, 35	0. 29859	0. 47366	10. 42, 8	
13	4. 22, 03	30. 0. 54, 9	4, 35	0. 29920	0. 47369	10. 38, 0	
14	21. 3. 28, 84	—30. 5. 13, 0	4, 34	0. 29987	0. 47372	10. 33, 2	
15	2. 36, 06	30. 9. 21, 3	4, 33	0. 30059	0. 47374	10. 28, 4	
16	1. 43, 74	30. 13. 19, 6	4, 33	0. 30137	0. 47377	10. 23, 6	
17	0. 51, 94	30. 17. 7, 9	4, 32	0. 30220	0. 47380	10. 18, 8	
18	0. 0, 70	30. 20. 46, 1	4, 31	0. 30309	0. 47382	10. 14, 0	
19	20. 59. 10, 10	30. 24. 14, 0	4, 30	0. 30404	0. 47385	10. 9, 2	
20	58. 20, 17	30. 27. 31, 7	4, 29	0. 30504	0. 47387	10. 4, 4	

These numbers have been calculated with the assistance of page 121 of the Jahrbuch of 1831.

